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ABSTRACT

This report presents information regarding the patterns of variation in the salaries paid to public and private school teachers in relation to various personal and job characteristics. Specifically, the analysis examines the relationship between compensation and variables such as public/private schools, gender, race/ethnic background, school level and type, teacher qualifications, and different work environments. The economic conceptual framework of hedonic wage theory, which illuminates the trade-offs between monetary rewards and the various sets of characteristics of employees and jobs, was used to analyze The Schools and Staffing Survey (SASS) database. The national survey was administered by the National Center for Education Statistics during the 1987-88, 1990-91, and 1993-94 school years. Findings indicate that on average, public school teachers earned between about 25 to 119 percent higher salaries than did private school teachers, depending on the private subsector. Between about 2 and 50 percent of the public-private difference could be accounted for by differences in teacher characteristics, depending on the private subsector. White and Hispanic male public school teachers earned higher salaries than their female counterparts. Hedonic wage theory would predict that teacher salaries would be higher in schools with more challenging, more difficult, and less desirable work environments. Schools with higher levels of student violence, lower levels of administrative support, and large class sizes paid higher salaries to compensate teachers for the additional burdens. However, some of the findings contradict the hypothesis. For example, public school teachers working in schools characterized by fewer family problems, higher levels of teacher influence on policy, and higher job satisfaction also received higher salaries. In conclusion, the results are consistent with the hypothesis that a complex array of factors underlie the processes of teacher supply and demand and hence the determination of salaries. Teachers are not all the same, but are differentiated by their attributes. At the same time, districts and schools are differentiated by virtue of the work environment they offer. Seventeen tables and two figures are included. Appendices contain technical notes, descriptive statistics and parameter estimates for variables, and standard errors for selected tables. (Contains 84 references.) (LMI)

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**NATIONAL CENTER FOR EDUCATION STATISTICS**

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# The Patterns of Teacher Compensation

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National Center for Education Statistics

**U.S. Department of Education**
**Office of Educational Research and Improvement** **NCES 95-829**

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January 1996

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# Executive Summary

This report presents information regarding the patterns of variation in the salaries paid to public and private school teachers in relation to various personal and job characteristics. Specifically, this analysis examines salary differences between public and private school teachers, male and female teachers, teachers of differing racial and ethnic backgrounds, elementary and secondary teachers, teachers with different qualifications, and teachers operating in differing work environments. The term "teacher characteristics" in this analysis encompasses personal attributes as well as professional qualifications.

The empirical analyses presented in this report are based upon a conceptual framework that has been used by economists for years to examine the relationship between prices and characteristics of goods and services: namely, hedonic price theory or, in this instance, hedonic wage theory. This conceptual framework builds on the notion that employees care about both the monetary rewards as well as the quality of their work environment, while employers care both about the wages they pay as well as the sets of productive attributes of the individuals they employ. The labor market processes that match employees to employers and ultimately individual workers to job assignments reveals information about these sets of preferences of employers and employees. The result is a set trade-offs between monetary rewards and the various sets of characteristics of employees and jobs. The analysis explores what schools and school systems value in teachers and, hence, are willing to pay more to acquire. At the same time, it reveals the extent to which teachers are willing to trade-off wages to work in more pleasant environments. In essence, this analysis helps illuminate what is important and what matters about teachers, from the viewpoint of school employers, and what matters to teachers.

Hedonic analysis also illuminates the trade-offs, both implicit and explicit, that confront employees. This analysis goes beyond the characteristics that are formally rewarded in salary schedules, such as degree level and longevity, and hence, one of the strengths of hedonic analysis is that it includes both pecuniary and nonpecuniary rewards. That is, such an analysis shows the comparative value in the market for teachers of obtaining a graduate degree, of teaching smaller class sizes, of choosing a career in private as opposed to public education, of working in disruptive schools, or of putting in more after-school hours.

Patterns of teacher compensation reflect, at least in part, the forces of supply and demand. Value is shaped by the balance or imbalance between supply (i.e., the degree of availability of some quantity or characteristic) and demand (i.e., the extent or need for some quantity or characteristic). From this viewpoint, shortages are a temporary imbalance between supply and demand that will self correct in the absence of barriers to market forces.

Increases in compensation are one of the market forces that establish balance. That is, shortages of particular types of teachers or in particular types of schools will be reflected in higher salaries. By isolating what factors are related to higher salaries, hedonic analysis illuminates potential areas and qualities experiencing shortages.

Finally, hedonic wage analysis is a reflection of "*what is*" as opposed to "*what ought to be.*" That is, it reveals the current market value of teacher characteristics: what schools are willing to pay for in the market for teachers. It does *not*, however, reveal which characteristics *should* be valued. It does not necessarily provide a guideline to schools of which teacher characteristics are the most productive.

The interpretation of these effects suggests that both supply- and demand-side factors are working and that in some instances, they are not easily distinguished from one another. Both objective and subjective measures of the school and work environment have exhibited effects on salaries. In some instances, it is shown that more difficult work environments are associated with higher wages, all else equal. This suggests that providing similar teacher services to all types of students will require different salary levels for teachers.

It is important to recognize that although each variable or collection of variables is examined in isolation, the results reported in this study are derived from a multivariate analysis that allows the analyst to isolate the impact of each variable while controlling for all of the other factors that affect teacher salaries.[1]

Highlights of the findings of this study are presented below.

**Public and Private Sector Salary Differences**

- On average, public school teachers earn between about 25 to 119 percent more than private school teachers earn, depending upon the private subsector.
- Conservative Christian, Catholic parochial, and other religious-unaffiliated schools are the poorest paying, while Catholic, nonsectarian private, and special education schools are the highest paying nonpublic schools.
- Between about 2 and 50 percent of this public-private difference can be accounted for by differences in teacher characteristics depending upon the private subsector.
- Controlling for differences in teacher and school characteristics between the public and private sectors, one observes a residual difference in the salaries of teachers that is simply associated with the sector in which the teacher is employed. These public-private salary differences are the result of one or a combination of two alternative forces:
    - They reflect unobservable characteristics between the two sectors that make private schools more desirable places to work as evidenced by the wage sacrifice that private school teachers make to remain in the private sector **or**

---

[1] The foregoing analyses have also controlled for the characteristics of the regions and labor markets within which schools and districts compete for teachers' services. These regional and labor market factors and their implications for examining variations in teacher costs are discussed in more detail in a separate report completed under this same task by Chambers (1995).

- They reflect factors (e.g., certification requirements) that influence the free flow of teachers between the two sectors that may ultimately have the effect of reducing differences in salary levels.

### Differences in Teacher Sex and Racial-Ethnic Background

Despite the fact that sex and race-ethnicity are not accounted for in formal salary scales in the public or private sector, some differences in the salaries of teachers are associated with sex and racial-ethnic background once other teacher and school characteristics are taken into account. Specifically,

- White and Hispanic male public school teachers earn higher salaries than their female counterparts. Male public school teachers earn between 10 to 13 percent more than females, on average, and a little more than half of this difference is accounted for by differences in the characteristics of male and female teachers. The remainder of the difference may be due, in part, to differences in the labor markets for males and females.

- Married females receive lower salaries than nonmarried females, while for males, no difference associated with marital status is identified, all else equal.

- Racial-ethnic differences among teachers were observed only for male public school teachers. The only statistically significant difference in salaries observed related to racial-ethnic background is the 4 percent difference favoring white (not of Hispanic origin) males over blacks (not of Hispanic origin).

### Differences in School Level

- On average, secondary teachers earn more than elementary school teachers. In the public sector, this amounts to about 3.4 percent for females and 6.3 percent for males, while in the private sector, these differences amount to 13.1 percent for females and 14.8 percent for males.

- More than half of the difference in the salaries of elementary versus secondary teachers in both sectors can be accounted for by differences in the characteristics of elementary and secondary teachers.

### Differences in Teacher Qualifications and Effort

- General teaching experience, school-specific experience, and age each contribute independently to wage differentials. In the public sector, each year of general teaching experience is valued more highly (in terms of pay differential) than each year of school-specific experience, which in turn is more highly valued than age (as a reflection of maturity). In the public sector, a new teacher receives an annual salary increment of 2.12

percent for an additional year of general experience, 0.86 percent for an additional year of school-specific experience, and 0.17 percent for an additional year in age.

- Public and private school teachers with higher degree levels earned higher salaries, all else equal. For example, a master's degree is associated with a salary increment of 11.31 percent for public school teachers and 8.20 percent for private school teachers. However, only public school teachers benefitted in terms of higher salaries associated with the acquisition of state certification. A public school teacher with a standard teaching certificate earns about 3 percent more than a teacher with no certificate.

- In the public sector, undergraduate majors such as mathematics, business, and vocational education, which prepare teachers for potential, lucrative, noneducation sector careers as well as for teaching, seem to be associated with higher teacher salaries, all else equal. Salary increments are 2.37 percent for mathematics, 1.63 percent for business education, and 3.02 percent for vocational education. This pattern seems to be less true in the private sector.

- Greater amounts of nonschool time spent by teachers on school-related activities are associated with higher public (0.11 percent per hour per week) and private (0.21 percent per hour per week) school teacher salaries, all else equal. Mentor teachers receive a wage advantage in the private sector (i.e., about 6.5 percent), but no relationship is detected in the public sector.

## The Impact of Working Conditions on Teacher Salaries

Teacher salaries are systematically related to certain characteristics of the work environment. Hedonic wage theory would predict that, all else equal, teacher salaries would be higher in schools with more challenging, more difficult, and less desirable work environments.

- Public school teachers working in schools that are characterized by higher levels of student violence and lower levels of administrative support are paid higher salaries (0.70 percent), all else equal.

- Larger relative class sizes for individual teachers are also associated with higher salaries, although the effects are small in magnitude. For example, a 50 percent increase in class size (e.g., from 20 to 30 students) is associated with a 0.5 percent higher salary, all else equal.

Each of these characteristics of the work environment are associated with greater burdens and hence higher salary levels to compensate for these additional burdens, although in some cases the salary differences are relatively small.

Some of the results are opposite of what was hypothesized.

- For example, public school teachers working in schools that are characterized by fewer family problems, higher levels of influence on policy, and higher job satisfaction also receive higher salaries (i.e., 1.00 percent, 0.58 percent, and 0.62 percent, respectively).

One could argue that the "better" teachers are assigned the jobs characterized by these attributes, and the inability to capture all of the appropriate teacher quality attributes in the present analysis prevent one from identifying the hypothesized relationships. Indeed, more comprehensive data on teacher attributes believed to be associated with "better" teaching will be needed in the future to determine the potential bias that may be reflected in the present results.

## Limitations of the Present Study

As with most studies of this type, this study has certain limitations that will require future research to resolve.

- First, because of the limitations of the dataset, no attention has been given to teacher benefits. Do teacher benefits follow the same patterns of variation? This research could be significantly improved by gathering better information on the costs per teacher of benefit packages provided by public and private school systems.

- Second, teacher quality is not a well-defined concept. The present dataset contains no information on such potential measures of teacher quality as the quality of the undergraduate institution of higher education attended, the level of the teacher's mathematics or verbal skills, or teaching ability (e.g., based on National Teacher Examination scores). In the absence of such quality or ability measures, the results of this analysis could be biased.

- Third, further research needs to be done to examine the stability of the relationships observed in the present study. Which factors related to teacher salaries show persistent relationships over time? Do the patterns of compensation match conventional perceptions about the patterns of shortage and surplus in the markets for teachers (e.g., for mathematics and science teachers)? How do these patterns change over time?

## Concluding Remarks

The forces of supply and demand in the market for teachers underlie the determination of teacher salaries. Some of the forces represent general market forces common to all labor markets (e.g., male-female wage differences, the age earnings profiles, and the value of additional education), while some of the factors are clearly unique to the teacher market (e.g., class size effects and the perceptions of student behaviors). The results of the present study are consistent with the hypothesis that a complex array of factors underlie the processes of supply and demand for teachers and hence the determination of salaries. Teachers are not all the same, but are differentiated by their attributes. At the same time, districts and schools are not identical, but rather are differentiated by virtue of the work environment (e.g., types of students) they offer.

Although not exhaustive, the present study illustrates some of the systematic patterns of variation in wages in relation to teacher and school characteristics. More than 60 percent of the variance in teacher salaries is accounted for by the collection of independent variables included in the statistical analyses presented in this report.

# Chapter 1 Introduction

Levels of employee compensation reflect, at least in part, the forces of supply and demand. Within a particular labor market, employees offer a variety of personal characteristics to employers, while employers offer diverse working places and conditions of employment. The market forces underlying labor supply and demand are resolved in a complex process of matching individuals with unique personal characteristics to jobs characterized by unique sets of working conditions. It is within this context of supply and demand that patterns of teacher compensation are examined in this report.

The patterns of teacher compensation across local schools and school systems ultimately reflect a multitude of decisions made by teachers and their employers: namely, public and private school decisionmakers. The level of compensation is the metric by which economic value is conveyed, and it provides a basis to measure and compare the trade-offs between and among different teacher and job characteristics.

Teacher salary scales in the public education sector reflect the results of collective bargaining agreements, and these scales are determined exclusively on the basis of longevity in the school district and college credits or degree level earned. Despite this typical salary structure, many factors influence the process by which school decisionmakers assign teachers to jobs. The characteristics of teachers and their job assignments at the classroom, school, district, and regional levels all play a role, and, thus, have an implicit influence on the rates of pay teachers are willing to accept. The analysis presented in this report extends beyond factors such as experience and education reflected in traditional salary scales by including these other characteristics of jobs assignments, schools, districts, and regions as determinants of individual teacher salaries. The results of this analysis are a reflection of the forces of supply and demand that are operating in the market for public school teachers.

In contrast to the public sector, private school teacher salaries are often not based on any kind of formal salary scale tied to longevity and college credits or degrees. Moreover, in relatively few cases is there any process of collective negotiation involved in determining salaries. However, some systematic similarities and differences in the patterns of salary variation in the private sector can be observed.

In both the public and private sectors, teacher compensation exhibits systematic relationships with teacher background characteristics (e.g., sex and racial-ethnic background), teacher qualifications (e.g., general and specific experience, educational preparation, certification), and working conditions (e.g., class sizes and student behavior). These relationships likely reflect information about (a) the value of the teacher characteristics and qualifications as perceived by employers; (b) the "value" of specific working conditions—that is, the amount required to compensate teachers for certain characteristics of the work environment (e.g., large class sizes); and (c) patterns of shortage of particular attributes in the labor market.

The patterns of wage variation presented in this report reflect the influence of both supply and demand factors. Specifically, they reflect the combined impact of decisions made by teachers who are offering their services and by school districts who are trying to hire teachers. The effect on wages (positive or negative) for a particular teacher characteristic (e.g., additional education) reflects a combination of the perceived value of the characteristic by school decisionmakers and the availability of the characteristic in the market. Similarly, the relationship between wages and a particular job characteristic reflects the desirability of a job with that characteristic as perceived by the teacher, as well as the effects on productivity and costs as perceived by school district officials. Using the example of class size as a job characteristic, one might hypothesize that teachers prefer smaller class sizes and would require greater compensation to work with larger, rather than smaller, classes. Conversely, school officials are likely to perceive negative effects on productivity of larger classes, but positive value in lowering the costs of services (i.e., requiring fewer teachers to serve a given number of students). All of these factors combine to determine the observed relationship between teacher wages and class size.

## Purpose of the Report

The purpose of this report is to examine the relationships between compensation and certain teacher and job characteristics in order to address the following research questions:

- **Public and private sector salary differences:** *What are the differences in the compensation of public and private school teachers? To what extent can actual differences in wages be accounted for by differences in the characteristics of public and private school teachers or differences in the characteristics of jobs and work environments?*

- **Differences in teacher sex and racial-ethnic background:** *What roles do sex and racial-ethnic background play in the patterns of teacher compensation? Do male teachers earn more than similarly qualified females in similar positions? Do minority teachers earn more or less than similarly qualified nonminority teachers in similar positions?*

- **Differences in school level and type:** *How does the level and type of school affect compensation for teachers? Do secondary teachers earn more than elementary teachers? Are there any differences in compensation for teachers working in special education schools, vocational/technical schools, or alternative schools?*

- **Differences in teacher qualifications and effort:** *What is the relationship between teacher compensation and teacher qualifications? What additional compensation can teachers expect from investment in additional training (e.g., higher degree levels or certification)? Which undergraduate majors are most valued in the market? Do the difficulties in finding qualified mathematics and science teachers (see Ingersoll 1995) show up in higher wages for these teachers, reflecting their relatively greater* *opportunities in the labor market? Are teachers who put in additional time rewarded through additional compensation?*

- **The impact of working conditions on teacher salaries:** *What is the trade-off in compensation between teacher compensation and working conditions? What effects do the social and physical work environments for teachers have on compensation levels? What effects do variations in class sizes have on teacher salaries?*

The analyses presented in this paper are intended to isolate the effects of each of the factors described above on compensation. In each case, other factors that affect teacher compensation are controlled for while isolating the impact of the variable in question. For example, the analysis will examine the impact of degree level (educational preparation) on compensation while controlling for differences in other teacher and job characteristics, such as experience, age, sex, sector, and the composition of students served.

These patterns of differences in teacher salaries provide a foundation upon which to explain differential expenditures across regions of the country and across different types of school districts. It provides information on the ways in which the supply of, and demand for, teachers are reflected in compensation. What kinds of people are attracted by the observed differential rates of pay, and what kinds of trade-offs exist between compensation and working conditions?

To capture such variations in teacher compensation requires a comprehensive model of teacher supply and demand. It requires a model that portrays the complexities of the employment transaction between an individual teacher and the school district: that is, one that accounts for school district preferences for teacher qualifications and individual teacher preferences for working and living conditions in local communities. The *hedonic wage model* provides such a comprehensive conceptual framework for understanding and sorting out the various factors that underlie variations in the patterns of teacher compensation. This model is well suited as a tool to isolate the impact of working conditions and teacher characteristics while controlling for regional amenities and costs of living.

Until recently, no national data have been available to support a comprehensive analysis of the variations in teacher salaries. With the advent of the Schools and Staffing Survey (SASS), a data source has emerged that supports the empirical analysis required to develop a national, cross-sectional teacher cost index (TCI). The Schools and Staffing Survey (SASS), administered by National Center for Education Statistics (NCES), offers a unique opportunity to examine these patterns of variation in teacher compensation using hedonic wage analysis. SASS was administered in the 1987-88, 1990-91, and 1993-94 school years.

## Organization of This Report

Chapter 2 presents a discussion of the methods and measures used for the analysis of teacher salaries, including a conceptual framework for the analysis of teacher salaries, a listing of the analysis variables, and a description of the statistical models. Subsequent chapters present the results, organized according to the research questions posed above. Chapter 3 focuses on salary differences between public and private school teachers. Chapter 4 deals with salary differences associated with sex and racial-ethnic differences between teachers. Chapter 5 examines differences in salaries associated with teaching level (elementary versus secondary) and type of school. Salary differences arising out of differences in teacher qualifications and effort are presented in chapter 6. Chapter 7 contains an analysis of the impact of working conditions on teacher salaries. Finally, chapter 8 summarizes the findings and discusses some of the implications of these findings. Although this report by no means addresses every issue related to teacher compensation, it attempts to address in a systematic way those factors which most significantly relate to variations in teacher salaries, as reflected in the literature on the patterns of teacher compensation.

## Chapter 2 Methods and Measures

### Conceptual Framework

The SASS data offer a unique opportunity to examine the patterns of variation in individual teacher compensation using "hedonic wage analysis" (Antos and Rosen 1975; Chambers 1981a, 1981b). Chambers (1981a) described the hedonic wage model as follows:

> *The intuitive notion underlying this theoretical structure is that individuals care both about the quality of their work environment as well as the monetary rewards associated with particular employment alternatives, and that they will seek to attain the greatest possible personal satisfaction by selecting a job with the appropriate combination of monetary and non-monetary rewards. Similarly, employers are not indifferent as to the characteristics of the individual to whom they offer particular jobs. The result of these simultaneous choices is the matching of individual employees with employers. It is the result of this matching process itself that reveals implicitly the differential rates of pay associated with the attributes of individual employees and the working conditions offered by employers. More formally, it is the supply of, and demand for, individuals with certain personal attributes to any particular kind of job assignment that determines the equilibrium wages of labor as well as the implicit market prices attached to the personal and job characteristics.*
>
> *The implicit relationship observed between wages and the personal and job characteristics of individuals is referred to as a hedonic wage index. The word hedonic literally refers to the physical and psychic pleasures that one can derive from engaging in certain activities. In the context of labor markets, the word hedonic refers to the satisfactions or utility derived by employees from the characteristics of the work place and the profits or the perceived productive value derived by employers from the characteristics of employees they assign to certain jobs. The hedonic wage index permits one to decompose the observed variation in the wages paid to labor into the dollar values attached to each unit of the personal and workplace characteristics. (p. 51)*

The analyses presented in this report use this hedonic wage model to estimate variations in the compensation of teachers in relation to personal, job, and regional characteristics.[2] The analysis is carried out using weighted, multivariate, ordinary least squares regression to estimate the effects on wages (positive or negative) associated with particular personal, job, or locational characteristics. These effects on wages reflect the marginal impact of particular characteristics on wages in the market place.

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[2] For other attempts at using the hedonic wage model for analyzing teacher salaries, see Antos and Rosen 1975; Ballou and Podgursdky 1993; Chambers 1980b, 1981b, 1985; and Wendling 1979.

This analysis reveals wage premiums for attributes of the workplace and the employee that are not commonly included in regular salary schedules. For this reason, the coefficients are said to provide estimates of the *implicit* prices of particular attributes. It is the way these attributes are packaged as bundles of worker attributes and the way these worker attributes are matched to the bundles of job characteristics that create the patterns of implicit prices for these attributes. The location of teachers in schools represents a process of choice for the teachers (on the supply side) and for the school decisionmakers (on the demand side) that reveals the trade-offs among the teacher attributes and job characteristics; these trade-offs provide the basis for the set of implicit prices.

This analysis is carried out using data on individual teachers from the SASS Teacher Questionnaire. Each individual teacher observation included in the analysis is weighted to reflect the number of teachers in the population represented by that observation. This was necessary because of the complex, stratified design utilized in selecting teachers to respond to the survey.

## Formulation of the Model

The mathematical formulation of the hedonic wage model used for the analysis of teacher salaries is presented in Appendix B of this report. The statistical model is represented by a set of equations which relate the dependent variable (i.e., individual teacher compensation) to a set of independent or explanatory factors (i.e., teacher, job assignment, school, district, and regional characteristics).

The *dependent variable* in this analysis is defined as *the annual earnings of the teacher from the school district, including the base academic salary and any additional pay received for special job assignments*. The log form of the dependent variable is commonly used for earnings equations. This functional form assumes that the relationship between earnings and the independent variables are best expressed as proportionate or percentage differences in salaries rather than absolute dollar differences. Rosen (1974) also shows that the hedonic wage function is theoretically specified as a nonlinear (e.g., a log form) rather than a linear equation, which assumes that differences may be expressed in absolute rather than relative terms.[3]

The set of independent variables used in the analysis of variations in teacher salaries may be divided into two subsets: the *discretionary factors* and the *cost factors*. The discretionary factors are those within the control of local school decisionmakers in the long run. These include the characteristics of teachers and the attributes of the jobs to which they are assigned. In the long run and within the limits of the supply of teachers who are offering services, school decisionmakers have some control over the set of teacher attributes they employ. The only constraint that they face is that they must purchase a bundle of characteristics that are tied together in each particular individual they employ. In addition, school decisionmakers have control over the job titles and the specific attributes of the jobs to which they assign teachers. For example, these job attributes include such characteristics as the types of students served and class sizes. In order to calculate the TCI, one needs to control for, or eliminate the impact of, the variations in these discretionary factors.

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[3] If additional information could be obtained that would permit placing a value on fringe benefit contributions by the district, equations could be estimated using teacher compensation including salary and benefits. Unfortunately, the SASS database does not currently provide any information regarding how much public or private schools expend for various fringe benefit packages received by teachers. The SASS database does report information on the types of benefits available to and received by teachers. The dollar value of these benefits, however, is not reported.

It has been suggested by some reviewers that the dependent variable for this analysis should have been the base salary for the academic year, and that additional pay received for special job assignments should be analyzed separately. This would only be valid if additional pay and academic salary were truly separable in the employment transaction. This issue is discussed further in the technical Appendix A under "Choice of Dependent Variable."

The second set of independent variables are referred to as the cost factors. These are the factors that are used to analyze differences in the cost of employing comparable teachers across local jurisdictions (e.g., schools or school districts). They are referred to as cost factors because they are outside the control of local decisionmakers. These variables include the attributes of the jurisdictions and regions in which districts are located and in which teachers must live and work, and they are those variables which ultimately affect the willingness of teachers to live and work in these localities. Included among these factors are measures of labor market competition, factors reflecting costs of living, and factors that reflect the attractiveness of these jurisdictions and regions as places to live and work (e.g., crime rates, congestion, climatic conditions, and access to urban amenities). These factors are used to calculate what is commonly referred to as a teacher-cost-index (TCI). Chambers (forthcoming) has written a separate report focused on using some of the empirical results presented in the appendix of this report for the purpose of developing a TCI. For the most part, these cost factors will not be discussed in the present report but do serve to control for the effects of variations in locational factors.

The independent variables used in the analysis of teacher salaries are listed in table 2.1.

In the analyses presented in this report, the teacher salary differentials associated with variations in the independent variables are most often presented as percentage effects in the tables. A detailed listing of the mathematical forms used for each independent variable in the regression is presented in Appendix B in the tables of descriptive statistics (table B.1) and parameter estimates for the regression equations (tables B.2A and B.2B) used in this analysis.

**Table 2.1— List of independent variables**

**DISCRETIONARY FACTORS:**

**Personal characteristics of the individual teacher (T):**
*sex;*
*racial-ethnic background;*
*marital status;*
*membership in professional teacher or educational organization;*
*age,*
*total years since first began teaching (general experience),*
*total years in the present school (school-specific experience), and*
*number of breaks in service;*
*highest degree level;*
*undergraduate major.*

**Job assignment or classroom characteristics of the individual teacher (C):**
*percentage of full-time;*
*nature of assignment (itinerate or substitute teacher);*
*index of relative class size for teachers in similar subjects;*
*whether the teacher is a mentor;*
*percentage of time teaching out-of-field;*
*nonschool time spent on school-related activities;*
*whether the teacher assigned homework in the most recent week;*
*percentage of time teaching high- or low-achieving students.*

**Characteristics of the school in which the teacher is employed (S):**
*indices of student behavior and problems;*
*indices of teachers' sense of support, control, influence, and overall satisfaction with their work environment;*
*racial-ethnic composition of the students at the school;*
*percentage students absent on a recent day;*
*school type (i.e., elementary, secondary, special education, vocational, alternative);*
*an index of admission requirements.*

**COST FACTORS:**

**Characteristics of the district in which the teacher is employed (D):**
*racial-ethnic composition of the students in the district;*
*district size as measured by enrollment;*
*percentage growth in enrollment.*

**Characteristics of the region in which the teacher is employed (R):**
*percentage of total county enrollment accounted for by the largest district in the county;*
*measures of the distances from the closest central city;*
*percentage change in county population over the past decade;*
*value per acre of farm land;*
*population and density of the county and metropolitan area;*
*county unemployment rate;*
*measures of climatic conditions (mean temperatures and snowfall);*
*county-level crime rates;*
*number of banks per 100-thousand population.*

Three alternative models for analyzing teacher salaries are presented in this analysis:

1. A single-equation model that includes all teachers from public and private schools;
2. A two-equation model that specifies separate equations for public and private school teachers; and
3. An eight-equation model that includes separate equations for males and females by level (elementary versus secondary) and by sector (public versus private).

These alternative models are used because previous studies of teacher wage variations suggest that structural differences exist between the public and private sectors (Chambers 1985) and between males and females (Antos and Rosen 1975). Separate equations for elementary versus secondary teachers are specified because it is expected that the significant differences in the nature of elementary versus secondary service delivery and the differences in the ages of students served would result in differences in the supply of, and demand for, teachers and hence differences in the relationship between earnings and the various independent variables used in this analysis.

## The Role of Socioeconomic Status Variables and Cost-of-Living Differences

It is notable that certain socioeconomic status (SES) variables have been consciously excluded from the set of independent variables used in this analysis. In fact, data were available from the NCES Census Mapping Project on such items as median family income, median housing value, and measures of student poverty or at-risk populations. What role does SES play in the determination of teacher salaries? Are these measures of SES a reflection of local school district fiscal capacity? Does SES affect the preferences for educational services or for specific types of educational inputs (e.g., "better" teachers)? Or is SES a working condition for teachers? Do some of these SES measures reflect differences in the cost-of-living in a region?

If SES measures fiscal capacity or preferences for educational services or inputs, then it has an indirect effect on teacher salaries. For example, districts with greater fiscal capacity will exhibit a willingness to spend more on educational services. Increased spending will in turn permit local districts to exhibit demand for teachers with more of certain attributes or qualifications. The greater level of demand for certain teacher attributes or qualifications will be associated with higher salaries, all else equal. Thus, in this instance, the effect of SES on teacher salaries operates through the effects on local educational spending which in turn affects demand for teacher attributes and hence salary levels. Inclusion of SES variables in the model in this case would involve a specification of the formal model of teacher wage determination.[4]

Is SES a measure of working conditions for teachers? Do teachers have a preference for teaching higher SES students? Are such students easier to teach and therefore preferred by teachers? If this were true, then one would expect teachers to give up wages to teach in districts with higher SES students. This author would argue that rather than being a direct measure of such working conditions, SES is a proxy measure. On the surface, one might hypothesize that SES is included in the analysis of teacher salaries to reflect the conventionally accepted notion that lower SES students may tend to be lower achievers, are perhaps more involved with violence, or are more likely to have family problems. However, if these correlates with SES are the underlying reasons for their inclusion, then it would be preferable to include more direct measures of these school or student characteristics. That is, rather than SES per se being the reflection of the working condition, it seems more reasonable to hypothesize that the behaviors of the students or the evidence of problems in the interactions with their families are more likely the factors that underlie teachers' attitudes toward a school environment. Instead of SES measures, the present analysis includes information about whether or not the teacher is assigned to high- or low-achieving students, and three scales which reflect the level of students' self-abusive behavior, the level of student violent behavior, and the level of family problems.[5]

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[4] For a more formal specification of the hedonic wage model, which illustrates the effects of district fiscal capacity on teacher wages, the reader is referred to Chambers (1981b).

A third rationale for including SES measures as independent variables is that such variables as median family income or housing value reflect cost-of-living differences in local communities. While each of these measures has a relationship with the cost of living, they also reflect many other factors besides the cost of living which would confound the estimation of differences in teacher costs. Localities with higher costs of living will certainly exhibit higher median family incomes, and higher housing values also correlate with higher costs of living.

But what are the factors that underlie higher costs of living? Is it greater housing values or median family income per se, or are there other more direct measures of the underlying factors that create cost-of-living differences across regions? The goal is to utilize measures which as much as possible represent the underlying cause of cost-of-living differences rather than proxy measures or variables that are simply correlates. It is not higher housing values per se, but the higher costs of land that underlie the greater housing costs. The value of land for business uses or the amenities that characterize a particular location ultimately are reflected in the prices of land. These differences in land prices serve as one of the factors that cause cost-of-living differences. The problem with median housing values is that they reflect not only the value or cost of the land, but also the collection of features of the housing stock, such as the average lot size, the average square footage of the interior space, and the quality of the construction. Thus, median housing values reflect both the cost of land and the quality of housing.[6]

As with median housing values, the variations across local jurisdictions in median family income reflect not only variations in the cost of living, but also variations in the characteristics of the work force. Areas with a greater percentage of highly educated professional workers will also exhibit higher median family incomes. Thus, the composition of industry and the work force in a locality will affect median family income; median family income is simply a correlate of the cost of living and is not an underlying cause of the observed differences per se.

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[5] Each of these scales is based on a series of survey items asked of teachers. A discussion of how these scales were created and the elements included in each is presented in Appendix A (Technical Notes) under "Measures of School Climate."

[6] For a further theoretical discussion of how cost of living and related factors enter into the analysis of teacher salaries, see Chambers 1981a, pp. 59-60.

The variables selected to reflect cost-of-living differences include the price per acre of agricultural land; the distance from the central city; whether the district is located within 75 miles of two or more central cities; the growth in local population over the past decade; and the population or density of the county or metropolitan area. The minimum price per acre of agricultural land in all of the counties in a metropolitan area (or simply the average price per acre of agricultural land in a nonmetropolitan county) represents the cheapest use of land in an area. Thus, the price per acre of agricultural land represents a base price of land within an area. The distance from the central city is utilized to reflect the notion that land in different parts of an urban area will be valued differently simply by virtue of access to centers of employment and access to the cultural and commercial amenities of urban life (i.e., land in the central city is generally more valuable and hence more costly). Regions with higher base prices of land will have higher costs of living, and districts within a metropolitan area that are further from the central city are expected to have somewhat lower costs of living. Moreover, districts that are located between or adjacent to (i.e., less than 75 miles from) more than one central city, and hence, center of employment, may have higher land values and higher costs of living. In addition, regions exhibiting faster growth in population will also exhibit higher costs of living due to increasing demand for local goods and services. Finally, more populated and more urbanized areas will tend to exhibit higher costs of transportation (e.g., commuting) within the area, which results in higher costs of living.[7]

Therefore, the SES measures reflect differences in fiscal capacity, are proxies for working conditions, and are only correlates of cost-of-living differences. They do not represent direct measures of the underlying factors that cause teacher wage differences. With all of these concerns in mind, the inclusion of SES measures would actually create a serious confounding of *cost* and *discretionary* factors in the determination of teacher salaries. For this reason, it would be preferable from a measurement point of view to include, as has been done as much as possible in the present study, the characteristics of regions or districts that represent the root causes of differences in teacher salaries.[8]

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[7] For a more detailed discussion of the rationale for these measures of the cost of living, see Chambers (1981a), pp. 59-60.

[8] A more detailed explanation of the theoretical model underlying the present analysis and the rationale for why these types of Census data are not included directly in the teacher salary equation is presented in Chambers 1981a and 1981b.

## The Data and Sample Design

The data for this study were derived primarily from the 1990-91 Schools and Staffing Survey (SASS), administered by the National Center for Education Statistics (NCES). Large stratified samples of teachers, public and private schools, principals, and public school districts are included in this data collection effort. Data for this study were taken from the teacher-, school-, and district-level questionnaires. The files from which the analysis dataset was derived contained responses from 46,750 public and 6,642 private school teachers; 8,969 public and 2,620 private schools; and 4,884 public school districts. In the statistical analyses, the data are weighted in order to produce nationally representative numbers of teachers, adjusting for the complex stratified sample selection process and the response rates for each questionnaire. Some small numbers of missing values for school enrollment and racial-ethnic composition are filled in using the nonfiscal surveys of the Common Core of Data and the Private School Survey, also conducted by NCES.

Data for the regional and jurisdictional characteristics of districts and the counties in which they were located were gathered from the Census Bureau, the U.S. Geological Survey, and the National Climatic Data Center.

**The sample size.** The actual sample included in the final regression equations was approximately 40,000 public and 5,000 private school teachers. There are a number of reasons why the full SASS sample of 46,750 public school teachers was not used. The sample of teachers for this analysis was restricted to classroom teachers in order to increase the compatibility of the measures of classroom working conditions across individual teachers (e.g., the meaning of class sizes and the types of students served). The elementary enrichment teachers excluded from the analysis commonly serve an entire school rather than a single classroom. Class sizes or caseloads mean different things to enrichment teachers, and characteristics of the types of students served (e.g., high- versus low-achieving students) would not be based on a class, but rather a school variable. More than 1,300 public elementary and about 300 private elementary enrichment teachers were excluded from the analysis because of this compatibility issue.[9]

In addition, the sample was reduced in size by almost 3,000 teachers because there was no SASS district survey that matched to the individual teacher survey. An additional 2,000 public school and 1,300 private school teacher observations were lost because there were no matching school observations. A small number of teachers (approximately 300) was also lost because of missing Census mapping information that was used to match climatic and central city data.

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[9] Teachers were asked in the 1990-91 SASS: *Which of these best describes the way your classes at this school are organized?*

1 = **Departmentalized instruction**
2 = **Self-contained class**
3 = **Team teaching**
4 = **"Pull-out" class**
5 = **Elementary enrichment class**

This last category (5) includes art, music, physical education, and computer skills, among others, and is the category that was excluded from the sample for the analysis conducted in this study.

Technical details on these various files are presented in Appendix A of this report.

**The sample design.** The statistical analysis of teacher salary differences does take into account the complex sampling design of the SASS dataset. The regression estimates were obtained using ordinary least squares with each observation weighted according to the appropriate sampling weight provided in the SASS dataset. The complex sample design of the SASS dataset was accounted for in the methodology used to estimate the standard errors of the regression coefficients. These standard errors were estimated using the method of balanced repeated replication (BRR) using the 48 sets of replicate weights for teachers. Each coefficient was estimated 48 times, and the standard deviation of the coefficient among these estimates serves as an estimate of the standard error of the coefficient.

### Limitations of the Present Study

As with most studies of this type, it has certain limitations that will require future research to resolve. First, because of the limitations of the dataset, no attention has been given to teacher benefits. Do teacher benefits follow the same patterns of variation? Do districts that pay high teacher salaries also have good benefit packages? How do private and public school teacher benefit packages differ? Do public-private differences in benefits exacerbate or mitigate the observed differences in salaries? While SASS does report on which benefits are available to staff, no information is provided on the value or cost of these benefit packages to districts. This research could be significantly improved by gathering better information on the costs per teacher of benefit packages provided by public and private school systems.

Second, teacher quality is not a well-defined concept. The present datasets contain no information on such potential measures of teacher quality as the quality of the undergraduate institution of higher education attended (e.g., as measured by college selectivity or average freshman scores on the SATs), the level of the teacher's mathematics or verbal skills (e.g., measured by SAT, GRE, or other test scores), or teaching ability (e.g., based on National Teacher Examination scores). The simplest way for SASS to address this problem would be to request that each teacher record the name of the institution from which each college degree was received. Ballou and Podgursky (1993) use data from the 1987-88 SASS which did contain information on the college attended for this purpose.[10] Teachers could also be asked to indicate their own percentile rankings on the SATs within broad categories (e.g., below 50 percentile, 50 to 75 percentile, 75 to 90 percentile, above 90 percentile). Alternatively, a short verbal test could be administered along with the SASS Teacher Questionnaire in order to obtain some information on verbal skills.

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[10] This question about college attended was dropped in the 1990-91 administration of SASS, but it was restored into both the Teacher and Principal Questionnaires in the 1993-94 administration of SASS.

The problem is that without such measures of teacher quality included in the analysis, there is likely to be bias in the estimated compensating differentials associated with certain working conditions or local amenities. Suppose, for example, that unmeasured variation in teacher quality is present and it is negatively related to preferred working conditions or locational amenities—that is, schools located in attractive communities or jobs with preferable characteristics will tend to employ above-average quality teachers, while schools in less attractive locations or job assignments will tend to employ poorer quality teachers. Thus, measures of community or job attractiveness are positively correlated with an omitted variable, which itself has a positive relationship with the dependent variable (salary). The result in this case would be coefficients on valued working conditions or amenities that are biased upward, while coefficients on disamenities are biased downward. Since coefficients on amenities are expected to be negative (i.e., teachers give up wages to work in preferred locations or jobs) and vice versa for disamenities, both sets of coefficients will be biased toward zero. That is, the compensating differentials will be systematically understated.

Further research needs to be done to examine the stability of the relationships observed in the present study. Which factors related to teacher salaries show persistent relationships over time? Do the patterns of compensation match conventional perceptions about the patterns of shortage and surplus in the markets for teachers (e.g., for mathematics and science teachers)? How do these patterns change over time?

## Chapter 3 Salary Differences in the Public and Private Sectors

There has been a long standing interest in the differences in the quality of educational services between public and private schools. Differences in the supply of, and demand for, teachers between public and private schools play a significant role in understanding differences in the quality of services.[11] Differences in the patterns of compensation suggest that there may be differences in the cost of comparable services. However, determining such relationships requires understanding the reasons for these wage variations. Are they associated with differences in the characteristics of teachers or the work environment?

A previous study (Chambers 1985) suggests that public and private school teachers operate in separate markets. That is, although there is a flow of teachers between the two sectors, many of the teachers and school decisionmakers in these sectors respond differently to the characteristics that distinguish the public and private sectors.[12] If this were not true, it would be possible to account for all of the salary differences between public and private schools by differences in the extent to which school characteristics and working conditions themselves affect teacher salaries.

This chapter examines differences in patterns of compensation between public and private school teachers by using the hedonic wage regressions estimated for public and private school teachers to simulate the wages and wage differences under a variety of hypothetical circumstances. The focus of this analysis will be in comparing public school teachers with each of the nine categories of private schools identified in the SASS database. The simulation utilized two hedonic salary regression equations: one estimated for the public school teachers and one estimated for private school teachers. These two equations are presented in table B.2A in Appendix B.

Table 3.1 presents the results of the simulations of the differences between public and private school teacher salaries. Private school types (in column 1) are listed in ascending order according to the actual average teacher salary (in column 2). Private schools are categorized according to the typology developed by McMillen and Benson (1991) that was adopted by NCES. Catholic schools are categorized in SASS as parochial, diocesan, or private. Other religious schools are divided into three categories, including Conservative Christian, denomination-affiliated, and unaffiliated. The nonsectarian private schools are also divided into three categories: regular program, special emphasis program, and special education program.

The data in table 3.1 show that, on average, the conservative Christian schools pay the lowest salaries ($13,538) to teachers followed in ascending order by the other religious-unaffiliated schools, the Catholic parochial schools, other religious-affiliated schools, and the

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[11] See, for example, Coleman and Hoffer (1987) and the volume by James and Levin (1988).

[12] It is estimated that 10,145 of the 2.2 million public school teachers moved to the private school sector, while 10,674 of the 287,000 private school teachers moved to the public school sector (Ingersoll 1995).

Catholic diocesan schools. These schools pay average salaries ranging from $13,538 to $17,148 per year for teachers' services.

The highest paying private schools are the Catholic private schools, which pay an average of $23,701 to teachers. The next highest paying private schools in descending order are the nonsectarian special education schools, the nonsectarian private schools, and the nonsectarian schools with special emphasis. These schools pay average teacher salaries ranging from $20,427 to $23,490.

The average public school teacher earns an annual salary of $29,709. Column 3 of table 3.1 contains the absolute difference between the average public school teacher salary and the average private school teacher salary. Based on these figures, the average public school teacher earns anywhere from about $6,000 to more than $16,000 more than the average private school teacher depending on the private subsector within which the teacher is employed. All of these absolute differences are statistically significantly different from zero.

Column 4 shows the ratio of the average public to private school teacher salary by subsector. Based on these ratios, the average public school teacher earns between 25 percent and 119 percent over and above what the average private school teacher earns, again depending on the private school type.[13]

What are the factors that underlie the differences in teacher salaries between public and private schools? First, higher public school salaries could be explained, at least in part, by differences in the qualifications of teachers: presumably, teachers with higher qualifications (degree levels, certification levels, and other ability characteristics) will earn higher levels of remuneration in the market.

Alternatively, one might explain the salary differential on the basis of job assignment, student, school, or locational characteristics. That is, higher public school salaries could be explained if public schools represented more difficult places in which to teach or were located in less desirable places to live. In each case, one would predict higher teacher salaries in public schools to compensate for these disadvantageous working conditions (e.g., larger class sizes or more difficult student populations).

Ideally, one would like to account for all of the differences between the salaries of public and private school teachers in terms of either the measured teacher or school-locational characteristics. Unfortunately, the present analysis is unable to account for all of the salary differences in terms of systematic differences in teacher and school-locational characteristics.

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[13] The standard errors from which these confidence intervals are determined are presented in table C.1 in Appendix C of this report.

Columns 5 through 7 of table 3.1 break down the differences between public and private school teacher salaries in each subsector into three components: those caused by differences in the value of teacher characteristics; those caused by differences in the value of school-locational characteristics (compensating differentials); and the remainder, which in this case is caused by differences in the structure of the statistical model (i.e., differences in the parameter estimates of the regression equations) of public and private school teacher salaries.[14] The structure of the model in this case represents the collection of factors including the characteristics of teachers and schools not accounted for in the present analysis as well as the differences in the preferences or priorities of teachers and their employers between the public and private sectors. The following discussion describes how this simulation of salary differences was conducted.

This breakdown of the salary gap between the public and private sectors is determined by a series of salary simulations using the two salary regression equations: one for public school and one for private school teachers. Table 3.2 provides a guide as to how these simulations are carried out. Simulation 1 addresses the following question:

> ***Simulation 1.*** *What is the average private school teacher salary?*

The average private school teacher salary (column 2 of table 3.1) is determined for each private school subsector (column 1 of table 3.1) by substituting the average teacher and school-locational characteristics corresponding to that private school type into the private school teacher salary regression. The labor market is represented by the parameters of the private school teacher equation.

Second, public school teacher characteristics are substituted into the private sector equation to address the following question:

> ***Simulation 2.*** *What would the typical public school teacher earn if he or she were employed in a typical school in the private sector?*

This simulation uses the private school equation along with the private school-locational characteristics and the public school teacher characteristics. The difference between this simulated salary level and the actual average salary level of private school teachers represents the difference in the value of teacher attributes as valued by private school decisionmakers.

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[14] The difference in coefficients between the public and private school teachers' equations are presented in table B.2A in appendix B. In some private schools (generally those with some religious orientation), a portion of their teachers indicated that they worked at the school on a "contributed service basis" (meaning at less than a full salary). Salaries of those private school teachers who indicated that they worked on a contributed service basis earned 19.4 percent (t=6.74) lower salaries than other school teachers, all else equal. This salary differential effects 9 percent of all private school teachers: 15 percent in the Catholic diocesan and Catholic private schools, 12 percent in the Catholic parochial schools, 9 percent in the conservative Christian schools, 8 percent in the other religious-unaffiliated schools, 7 percent in the other religious-affiliated schools, and less than 2 percent in each of the other private school types. Based on the estimated effects and the distribution of private school teachers who work on the basis of contributed service, the average private school teacher salary differential associated with contributed service ranges from virtually 0 percent for nonsectarian special education schools to 2.9 percent for Catholic diocesan or private schools. These differentials are reflected in the public-private school differences analyzed in the text. They are part of the differences in teacher characteristics.

**Table 3.1— The factors underlying the differences in salaries of public and private school teachers, by private school type**

| Private School Type (1) | Average Private School Teacher Salary (2) | Absolute Difference Between Public and Private School Teacher Salaries (3) | Ratio of Public to Private Teacher Salaries (4) | Percent of Difference Between Average Public and Private School Teacher Salaries Due to: | | | |
|---|---|---|---|---|---|---|---|
| | | | | Teacher Char. (5) | School Char. (6) | Structure of The Models (7) | Total (8) |
| Conservative Christian | $13,538 | $16,171** | 2.19** | 15.79%** | 0.38% | 83.82%** | 100.0% |
| Other religious unaffiliated | 14,938 | 14,771** | 1.99** | 14.13** | 0.63 | 85.24** | 100.0 |
| Catholic parochial | 15,826 | 13,883** | 1.88** | 12.67** | 7.54** | 79.80** | 100.0 |
| Other religious affiliated | 17,090 | 12,619** | 1.74** | 20.86** | 5.36* | 73.77** | 100.0 |
| Catholic diocesan | 17,148 | 12,561** | 1.73** | 11.07** | 10.98** | 77.95** | 100.0 |
| Nonsectarian: special emph. pgm. | 20,427 | 9,282** | 1.45** | 33.09** | 0.02 | 66.90** | 100.0 |
| Nonsectarian: regular pgm. | 22,772 | 6,937** | 1.30** | 13.94* | -4.25 | 90.30** | 100.0 |
| Nonsectarian: special ed. pgm. | 23,490 | 6,219 | 1.27 | 49.95** | 10.64 | 39.41* | 100.0 |
| Catholic private | 23,701* | 6,008 | 1.25 | 1.80 | 33.74* | 64.46** | 100.0 |

Level of significance: *=.05, **=.01. The significance levels test whether these estimates are different from zero. In the case of column (4), these significance levels test whether the ratios are different from 1.0, with the exception of the ratio for conservative Christian schools, which is tested for its difference from 2.00.

SOURCE: The regression equations underlying the simulations for this table are displayed in table B.2A in Appendix B of this report. The list of variables which are included as teacher and school characteristics for the purposes of this simulation are listed in Appendix A. The statistical significance of these effects is based on the probabilities implied in the t-statistics presented in table B.2A for the corresponding parameter estimates. The standard errors are presented in table C.1 of Appendix C. *The datasets used for this analysis include the following*: U.S. Department of Education, National Center for Education Statistics (NCES), Schools and Staffing Survey: 1990-91; U.S. Department of Education, NCES, Common Core of Data (nonfiscal surveys): 1990-91; the Private Schools file: 1990-91; U.S. Department of Commerce, Economics and Statistics Administration, Bureau of the Census, County and City Data Book: 1990; National Climatic Data Center, The World Weather Disc: Climate Data for the Planet Earth.

Column 5 of table 3.1 shows the simulated difference in salaries associated with the value of the measured teacher characteristics (i.e., those included in the analysis). In general, the results show that public school teachers possess higher levels of qualifications than private school teachers. Based on the results of this analysis, anywhere from a low of about 2 percent to a high of about 50 percent of the difference in public and private school teacher salaries can be accounted for by differences in teacher characteristics. The smallest percentage difference due to teacher characteristics is accounted for between public and Catholic private school teachers, while the highest difference in teacher characteristics is between public and nonsectarian special education schools. Only about 16 percent of the difference in teacher salaries is accounted for by teacher characteristics for the lowest paying private schools (i.e., conservative Christian schools). With the exception of the Catholic private schools, similar orders of magnitude are observed for the other private schools with religious orientation: that is, for these schools, about 11 to 21 percent of the difference between public and private school teacher salaries is accounted for by teacher characteristics.

**Table 3.2— Simulation of differences in public and private school teacher salaries**

| | Structure of the Models (Equation) | Teacher Characteristics | School Characteristics |
|---|---|---|---|
| Simulation 1: *What is the average private school teacher salary?* | Private | Private | Private |
| Simulation 2: *What would the typical public school teacher earn if he or she were employed in a typical school in the private sector?* | Private | Public | Private |
| Simulation 3: *What would the typical public school teacher earn in the public sector if he or she were employed in public schools with the same characteristics as private schools?* | Public | Public | Private |
| Simulation 4: *What is the average public school teacher salary?* | Public | Public | Public |

The next simulation used the equation for public school teachers to simulate what public school teachers would have to be paid if the public schools possessed the characteristics of the private schools.[15]

> ***Simulation 3.*** *What would the typical public school teacher earn in the public sector if he or she were employed in public schools with the same characteristics as private schools (i.e., if public schools looked more like private schools)?*

Simulation 3 involves substituting private school characteristics and public school teacher characteristics into the public school teacher equation.[16] The difference between Simulation 3 and Simulation 2 represents the difference in salary associated with the difference in the structure of the regression models used to estimate public and private school teacher salaries (see table 3.2).

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[15] Although the school characteristics were altered, the public district characteristics for which there is no private counterpart remained the same.

[16] Certain characteristics of schools which appear in the public school equation do not appear in the private school equation. Specifically, the characteristics of the districts in which these schools are located do not have a counterpart in the private school sector. For this reason, the characteristics of public school districts are retained in these equations for the purpose of this simulation. This includes district size and the minority composition of the district.

Column 7 of table 3.1 shows the percentage difference in teacher salaries associated with the differences in the structure of the models of public and private school teacher salaries (i.e., the difference reflected between Simulation 3 and Simulation 2). The results show that anywhere from about 39 percent to as much as 90 percent of the difference between public and private school teacher salaries can be accounted for by the differences in the structure of the models or differences in unmeasured teacher or school characteristics.

Simulation 4 addresses the following question:

***Simulation 4**. What is the average salary of public school teachers?*

The remaining difference between *Simulation 3* (which is based on the public school teacher equation, public school teacher characteristics, and private school characteristics) and the average public school teacher salary (i.e., *Simulation 4*, which is based on the public school teacher equation, the public school teacher characteristics, and the public school teacher characteristics) represents the difference in salary associated with differences in school characteristics. On average, the smallest percentage of the differences between public and private school teacher salaries is accounted for by differences in school-locational characteristics. The largest difference is observed for Catholic private schools at just under 34 percent, while the remaining private schools all show differences of less than 11 percent. If, indeed, public schools are less desirable places in which to teach, one would expect these differences to be positive to reflect the compensating differential required to teach in the public sector. Although all but one is positive, only four are statistically significant.

Table 3.1 is important because it shows that there are differences in the salaries of public and private school teachers even after controlling for differences in the observed characteristics of public and private school teachers, the schools in which they teach, and the locations of these schools around the country. Based on this analysis, teachers in public schools earn anywhere from 25 percent to 199 percent higher salaries than private school teachers and that most of this difference is accounted for by differences in the structure of the models or differences in unmeasured qualities of teachers or characteristics of the public and private school environments.

What factors, then, might explain why these differences in public and private teacher salaries exist? The results of this analysis suggest that private school teachers sacrifice significant earnings by choosing to teach in the private sector. One explanation for this is that the model has simply not captured all of the unique characteristics of private schools that cause private school teachers to exhibit their willingness to remain in the private sector, despite the lower earnings.

A similar difference in salaries even appears between different types of private schools. Table 3.3 presents the differential levels of compensation associated with each subsector within the private sector, all else equal (i.e., controlling for all other variables). The salary of the *other religious-affiliated schools* is used as the base for the index (i.e., with an index value of 100); indices above or below 100 reflect different levels of salary for each private school type. As in the case of public-private comparisons, these results are consistent with the notion that some characteristics are not captured by the model—characteristics that may be unique to each type of private school that cause teachers to be willing to remain in one sector over another, despite the differences in earnings.

**Table 3.3— An index of private school teacher salaries, by private school type (other religious-affiliated schools set to the base of 100): 1990-91**

| Sector in which teacher is employed | Index of Private Sector Salaries by Sector |
|---|---|
| Other religious: affiliated | 100.00% |
| Other religious: unaffiliated | 86.71** |
| Other religious: conservative Christian | 83.69** |
| Catholic-parochial | 90.91** |
| Catholic-diocesan | 91.12** |
| Catholic-private | 109.05* |
| Nonsectarian: regular program | 114.18** |
| Nonsectarian: special emphasis program | 107.89 |
| Nonsectarian: special education program | 96.96 |

Level of significance: *=.05, **=.01. The significance levels test whether these differences are different from an index value of 100 corresponding to the other religious affiliated private schools. The value of 109.05 for the Catholic private schools indicates a 9.05 percent difference favoring Catholic private schools.

SOURCE: The parameter estimates from which these percentage estimates are derived are presented in table B.2A (the private school equation) in Appendix B. The statistical significance of these effects is based on the probabilities implied in the t-statistics presented in table B.2A for the corresponding parameter estimates. *The datasets used for this analysis include the following*: U.S. Department of Education, National Center for Education Statistics (NCES), Schools and Staffing Survey: 1990-91; U.S. Department of Education, NCES, Common Core of Data (nonfiscal surveys): 1990-91; the Private Schools file: 1990-91; U.S. Department of Commerce, Economics and Statistics Administration, Bureau of the Census, County and City Data Book: 1990; National Climatic Data Center, The World Weather Disc: Climate Data for the Planet Earth.

An alternative hypothesis is that the structural differences in public and private school teachers salaries may be explained by any factor that prevents the free flow of teachers between the two sectors. For example, many private school teachers may simply lack and/or are unable (or unwilling) to undertake the personal investment to acquire the minimum certification requirements necessary to qualify them for public school employment. Of course, certification requirements vary considerably from state to state, but the descriptive statistics for this sample indicate that 33 percent of the private school teachers have no certification whatsoever, compared

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to only 3 percent of the public school teachers.[17] In many states, certification is required for entry into public school teaching. These certification requirements may inhibit the flow of teachers from the private into the public sector. Without such certification requirements, the free flow of teachers from the private to the public sector might otherwise drive down the differential rate of pay between the two sectors. From another perspective, private school decisionmakers may be willing to hire relatively less credentialed teachers who stay for shorter periods of time and who are willing to accept lower salaries.

However, this hypothesis does not explain the differential that persists between the subsectors within the private sector. These subsector differences that are not explained by systematic differences in teacher or school characteristics suggest that there are other differences in either the preferences of teacher or school decisionmakers that permit these salary differences to persist. There are unmeasured or unobservable characteristics of teachers or schools that reveal themselves in the differences in the structure (parameter estimates) of the equations that are the source of the differences in salaries.

## Summary of Findings

In summary, public school teachers earn substantially higher salaries than private school teachers. To some degree, these differences can be explained by differences in the characteristics of public and private school teachers that are rewarded by public and private school decisionmakers. Moreover, to some degree, these differences in earnings may be attributed to differences in the factors that characterize the work environments of public and private schools themselves.[18] However, there is a residual difference in earnings that cannot be explained in terms of the models utilized in the present study. One hypothesis is that this residual difference in earnings may be explained by certification requirements that prevent the free flow of teachers between the two sectors. However, this does not explain the persistent differences between different types of schools within the private school sector. Further research is needed to understand why private school teachers do not move to the public sector given the differences in remuneration that are observed between these two sectors. Case studies or attitudinal surveys could perhaps yield some valuable insights into this teacher market phenomenon. Precisely, what is it about private schools or private school teachers that permits this salary difference to persist?

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[17] The statistics on certification come from table B.1 in Appendix B for the variable labeled "NO TCHING CERTIFICATE." This variable takes on the value of 1 for those with no teaching certificate and is 0 otherwise. The mean value for private school teachers is 0.33 and for public school teachers is 0.03.

[18] Some of these differences are more fully elaborated upon in later chapters of this report.

# Chapter 4 Salary Differences Related to Teacher Sex and Racial-Ethnic Background

What does the labor economics literature indicate about differences in the earnings between male and female teachers and between teachers of different racial or ethnic backgrounds? Certainly no formal salary scales in the public and private school sectors would take sex or racial-ethnic background into account in setting salaries. Nevertheless, studies of teacher salary differentials have shown consistently that, all else equal, males earn more than females and whites generally earn more than minorities.[19] The present analysis attempts to shed further light on such salary differentials.

Table 4.1 presents differential salaries of teachers in different sex and racial-ethnic groups, using the separate public and private equations presented in table B.2A in Appendix B. Perhaps the most notable result is that both white males and Hispanic males in the public sector earn higher salaries than white females, all other factors equal. In both cases, this differential exceeds 5 percent. In the private sector, only the differential for white males is statistically significant, but it is more than twice the size of the public sector differential (11.48 percent versus 5.33 percent).

If sex is not explicitly recognized in formal salary scales, then why do such sex-based salary differentials exist? The reason is that the analysis method used (multivariate regression) controls for many more teacher and school characteristics than those reflected explicitly in teacher salary scales. When other characteristics such as education, age, and working conditions are held constant, female teachers earn less than males. One way of interpreting these results is to suggest that for a given salary, schools are able to attract more highly qualified females than males. Or, in other words, the cost of employing a highly qualified male teacher is higher than the cost of a similarly qualified female. This may simply reflect the salary differences that exist in the larger labor market within which males and females compete.[20]

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[19] For studies of teacher salary differences in which sex and racial-ethnic differences are taken into account, see Augenblick and Adams 1979; Ballou and Podgursky 1993; Chambers 1978a, 1978c, and 1985; Antos and Rosen 1975; and Wendling 1979.

[20] It should be noted that the estimated male-female wage differential is smaller when only the base academic salary is used as the dependent variable than when the total salary (including base academic salary and supplemental pay for extra-curricular activities) is used as in the analyses presented in the text. Rather than the 5.33 percent male-female differential reported in table 4.1, the differential between white males and white females is 2.76 percent (t=8.06). Moreover, the 95 percent confidence intervals of these two estimates do not overlap (4.61 to 6.05 for the 5.33 percent estimate and 2.06 to 3.52 for the 2.76 percent estimate) suggesting that the two estimates are statistically significantly different from one another. In fact, the results of this analysis suggest that to some degree the male-female wage differential observed in the equation can be attributed to differentials paid to white male, high school PE teachers who are involved in extra-curricular work (perhaps coaching, though the data are not sufficient to support this contention). A more comprehensive analysis is contained in appendix A under the discussion "Choice of Dependent Variable—Academic and Supplemental Compensation."

Table 4.1, which is based on separate equations by sector (public versus private teachers in table B.2A), indicates that white (not of Hispanic origin) males in the public sector earn more [about 4.43 percent(= 5.33 - 0.90)] than black (not of Hispanic origin) males.[21] No statistically significant differences in salaries are observed between white males and Hispanic males. Also, no statistically significant differences are observed among females of different racial-ethnic origin.

**Table 4.1— Salaries of teachers in sex and racial-ethnic groups, as a percentage difference from white female teachers, by sector: 1990-91**

| Sex and Racial-Ethnic Origin of Teachers | Public Sector | Private Sector |
|---|---|---|
| **Sex and Racial-Ethnic Comparisons to White (not of Hispanic origin) Female Teachers:** | | |
| *Male Teachers:* | | |
| Asian/Pacific Islander | 2.59% | (†) |
| Black (not of Hispanic origin ) | 0.90 | 11.14% |
| Hispanic | 5.91** | 14.72 |
| Native American/Alaskan | -0.51 | (†) |
| White (not of Hispanic origin) | 5.33** | 11.48** |
| *Female Teachers* | | |
| Asian/Pacific Islander | 2.18 | -6.06 |
| Black (not of Hispanic origin) | -1.93 | 5.32 |
| Hispanic | 0.20 | 3.93 |
| Native American/Alaskan | -3.99 | (†) |

Level of significance: *=.05, **=.01. The significance levels test whether these estimates are different from zero. For example, this table indicates that in the public sector, white male teachers earn 5.33 percent more than white females.

† not reported because of insufficient sample size.

SOURCE: The parameter estimates from which these percentage estimates are derived are presented in table B.2B in Appendix B. The statistical significance of these effects is based on the probabilities implied in the t-statistics presented in table B.2B for the corresponding parameter estimates. *The datasets used for this analysis include the following*: U.S. Department of Education, National Center for Education Statistics (NCES), Schools and Staffing Survey: 1990-91; U.S. Department of Education, NCES, Common Core of Data (nonfiscal surveys): 1990-91, the Private Schools file: 1990-91; U.S. Department of Commerce, Economics and Statistics Administration, Bureau of the Census, County and City Data Book: 1990; National Climatic Data Center, The World Weather Disc: Climate Data for the Planet Earth.

To examine the salary differences between males and females in more detail, separate equations for males and females, by sector and level (i.e., the equations in table B.2B), were used to simulate salaries. Each equation reflects the structure of the labor market for the corresponding category of teacher (i.e., by sex, level, and sector). These equations allow for the possibility that teachers with different characteristics may respond differently to employment opportunities. For example, the value of education or experience might be different by sex, level, and sector. Similarly, the differences in salary effects associated with certain school characteristics might be different according to sex, level, and sector.

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[21] Based on the standard errors (in table C.4 in Appendix C) for the regression coefficients (in table B.2A), the 95 percent confidence interval on the 0.90 percent estimate is -1.76 to 3.56. The 95 percent confidence interval on the 5.33 percent estimate is 4.61 to 6.05. Thus, one can see that the confidence intervals of these two estimates do not overlap, suggesting that these two values are statistically significantly different from one another.

Table 4.2 addresses the following questions:

- *How would the salaries of male teachers with the same personal and school characteristics as female teachers compare, and vice versa?*
- *How much of the difference in salaries between males and females is due to differences in their personal and school characteristics versus differences in the structure of the labor markets in which they operate?*[22]

**Table 4.2— Simulation of salaries of male and female teachers with the same personal and school characteristics**

| | | Public | | Private | |
|---|---|---|---|---|---|
| Row | Analysis of Male-Female Wage Differences | Elementary | Secondary | Elementary | Secondary |
| A | Average salaries of females | $28,299 | $29,259 | $15,910 | $17,992 |
| B | Average salaries based on male characteristics in the female equations | $29,751 | $31,438 | $16,233 | $19,572 |
| C | Male-female salary differences due to differences in characteristics of males and females [=100x(B-A)/A] | 5.13%** | 7.45%** | 2.03% | 8.78%** |
| D | Average salaries of males (i.e., based on male characteristics in male equations) | $31,086 | $33,054 | $18,480 | $21,206 |
| E | Male-female salary differences due to differences in the structure of male versus female equations [=100x(D-B)/A] | 4.72%** | 5.52%** | 14.13% | 9.08%** |
| F | Overall male-female salary differential (C+E) | 9.85%** | 12.97%** | 16.16%** | 17.87%** |

Level of significance: * = .05, ** = .01. The significance levels test whether the percent differences in rows C, E, and F are different from zero. Standard errors for all values are presented in table C.2 in Appendix C.

SOURCE: The parameter estimates from which these percentage estimates are derived are presented in table B.2B in Appendix B. The statistical significance of these effects is based on the probabilities implied in the t-statistics presented in table B.2B for the corresponding parameter estimates. *The datasets used for this analysis include the following*: U.S. Department of Education, National Center for Education Statistics (NCES), Schools and Staffing Survey: 1990-91; U.S. Department of Education, NCES, Common Core of Data (nonfiscal surveys): 1990-91; the Private Schools file: 1990-91; U.S. Department of Commerce, Economics and Statistics Administration, Bureau of the Census, County and City Data Book: 1990; National Climatic Data Center, The World Weather Disc: Climate Data for the Planet Earth.

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[22] Assuming a well-specified model and no measurement error, differences in the structure of labor markets are represented by the different equations for males and females.

Row A of table 4.2 presents the average salaries of female teachers at the elementary and secondary levels in each sector. Row B simulates the salaries that females would earn if they possessed the same personal characteristics and taught in the same schools as the average male at each level in each sector. Row C—the percentage difference between row B and row A—reflects the percentage of the male-female salary differential that is associated with differences in their personal and school characteristics. For example, row C reflects the male-female salary differences attributed to male-female differences in degree level, experience, their distribution across undergraduate majors, different size districts or schools, and the types of students served (e.g., with respect to race-ethnicity or the indicators of the presence of student problems).

Moving from row B to row D, the personal and school characteristics are held constant, but the structure of the labor market changes from the female structure to the male structure. That is, row E—the percentage difference between row D and B—reflects the percentage differential between males and females solely due to differences in the equations themselves while controlling for differences in all characteristics (i.e., all explanatory variables). This portion of the salary difference reflects the differential treatment and behavior in the labor market: treatment might involve discrimination, and behavior might involve the differences in the ways males and females pursue job opportunities. In other words, differences reflected in row E reflect the fundamental differences between males versus females in their preferences and opportunities in the labor market. How much of the difference is due to discrimination, for example, may not be determined from the present data.

As indicated in row F in table 4.2, the average male earns about 10 to 13 percent more than the average female teaching in public schools. In private schools, the male-female differential ranges from about 16 to 18 percent. In the public sector, a little more than half of the overall differential between males and females is accounted for by differences in their personal and school characteristics. For public elementary teachers, 52.1 percent (=100 x 5.13/9.85) of the salary gap between males and females is accounted for by differences in personal qualifications and the environments in which they work. For public secondary teachers, 57.4 percent (=100 x 7.45/12.97) of the salary gap between males and females is accounted for by differences in personal qualifications and the environments in which they work. Conversely, just less than half (i.e., about 45 percent) of the gap between male and female salaries is associated with differences in the preferences and the labor market opportunities that affect the structure of supply and demand for male versus female teachers.

In contrast, more than half of the male-female salary differential observed in the private school sector is accounted for by the structure of the labor market. Virtually all of the difference (14.13 of the total 16.16 percent) in salaries between male and female elementary school teachers in private schools is a result of structure (i.e., differences in the equations for males and females);

while at the secondary level, 9.08 percent of the overall 17.87 percent is accounted for by the difference in labor market structure.[23]

Differences in salary between male and female teachers may be associated with marital status—specifically in limited labor market mobility, particularly among females. Previous studies (Chambers 1985) of teacher salaries have reported a negative relationship between salaries and whether an individual's mobility in the labor market is limited by a spouse's employment.

Although the SASS Teacher Questionnaire does not address the issue of mobility, teacher marital status is reported. As shown in table 4.3, the analysis revealed a negative relationship between teacher salaries and marital status. Estimating the separate equations for males and females, marital status exhibits a negative relationship with salaries only for female teachers in public schools. Being married is associated with a -1.84 percent wage differential for female teachers only (i.e., single teachers earn more), all else equal. These results are consistent with a number of potential explanations that have been explored in the literature on male-female wage differentials, including the dominance of males in the employment and relocation decisions of married couples and the willingness of women to sacrifice wages for the obligations of parenting.[24] The notion is that females will find a job in whatever region their husbands find their best jobs and/or are willing to accept lower paying positions to ensure their ability to care for their children. The result is that females may be somewhat more limited in their labor market mobility, forcing them to accept somewhat lower wages than they otherwise would.

**Table 4.3— Married teacher salaries, as a percentage difference from unmarried teacher salaries, by level, for public school teachers: 1990-91**

| | Elementary | | Secondary | |
|---|---|---|---|---|
| | Males | Females | Males | Females |
| Teacher is married | .25% | -1.84%** | 1.33% | -1.64%** |

Level of significance: *=.05, **=.01. The significance levels test whether these estimates are different from zero.

SOURCE: The parameter estimates from which these percentage estimates are derived are presented in table B.2B in Appendix B. The statistical significance of these effects is based on the probabilities implied in the t-statistics presented in table B.2B for the corresponding parameter estimates. *The datasets used for this analysis include the following*: U.S. Department of Education, National Center for Education Statistics (NCES), Schools and Staffing Survey: 1990-91; U.S. Department of Education, NCES, Common Core of Data (nonfiscal surveys): 1990-91, the Private Schools file: 1990-91; U.S. Department of Commerce, Economics and Statistics Administration, Bureau of the Census, County and City Data Book: 1990; National Climatic Data Center, The World Weather Disc: Climate Data for the Planet Earth.

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[23] Although the percentage effects differ between sectors, the absolute differences in salary between male and female secondary school teachers, associated with labor market structure, are quite similar. The public sector difference is $1,616 (= $33,054 - $31,438), and the private sector difference is $1,634 (= $21,206 - $19,572).

[24] See, for example, Goldin and Polachek (1987) and Wood, Corcoran, and Courant (1993) for evidence on alternative explanations for male-female wage differentials.

## Summary of Findings

The results of this analysis indicate that male teachers earn more than females in both the public and private sectors. At least in the public sector, this may be surprising given the traditional salary schedules, which would exclude sex as a criteria upon which salary differentials would be based. The analysis presented here controls for factors beyond those included in traditional salary schedules and hence reveals a male-female differential. In fact, the results of the present analysis are consistent with most labor market studies, which reveal male-female differentials while controlling for other personal and job characteristics. Moreover, approximately half of the gap between the salaries of male and female public school teachers is accounted for by differences in the qualifications and working conditions between males and females. The other half of the gap is a result of differences in how females are treated and perceived relative to males and in how they respond to differences in employment opportunities in the teacher labor market. These factors represent differences in the structure of the labor markets for males and females as reflected in the separate equations estimated for each sex group. An example of a structural difference is reflected in the differential effects of marital status on males and females. If marital status does represent more of a limitation in labor market mobility for females, then one would not be surprised by the findings of the present study (i.e., that married females receive lower salaries than similarly situated married males).[25]

The results of this analysis of sex differences in teacher labor markets are consistent with the male-female wage differences observed in other labor markets. That is, what is observed in teacher markets may simply be a reflection of the same factors that result in male-female wage differences in other labor markets. To the extent that these factors change in the labor market overall, one would expect the market for teachers to move in the same direction.

Racial-ethnic differences among teachers were observed only for male public school teachers. The only statistically significant difference in salaries observed related to racial-ethnic background is the 4 percent difference favoring white (not of Hispanic origin) males over blacks (not of Hispanic origin).

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[25] One reviewer suggested that a portion of the male-female salary differential could be due to the fact that general teacher experience in this analysis was measured using total years since the teacher first began teaching rather than actual years of teaching. While the analysis does control for number of breaks in service as well as marital status, the reviewer suggested that this measure of experience may be important if married women are following husbands and rearing children. Further research will be needed to untangle the numerous factors that may underlie the differences between males and females.

# Chapter 5 Salary Differences by Teaching Level and School Type

What impact does the type of school a teacher works in have on salary? To some degree, differences in the types of schools can be reflected by differences in the behaviors or characteristics of the students themselves. As much as possible, this study has been directed toward utilizing these kinds of direct measures to characterize the work environment (see chapter 7). However, to some degree, the type of school conveys information about the work environment in and of itself. For example, secondary schools are organized differently than elementary schools; secondary schools are generally departmentalized and serve an older and more mature school-age population than elementary schools. Thus, simply knowing whether a teacher is an elementary or a secondary teacher conveys important information about the work environment and responsibilities.

In addition to elementary versus secondary teachers, the SASS sample includes teachers working in special education, vocational/technical, and alternative schools. Each of these schools serves a unique population of students and may be characterized by different educational technologies than regular elementary and secondary schools. Special education schools generally serve the more severely disabled populations of students in small class size environments. Vocational/technical schools, however, are more oriented toward career education or technical subject matter. Alternative schools are generally characterized as serving hard-to-reach student populations who, for one reason or another, are not succeeding in the traditional school environment. Staff/student ratios may tend to be lower, and alternative approaches to teaching may be utilized to meet the needs of these special populations.

With these differences in mind, the purpose of this chapter is to determine whether there are any systematic differences in the salaries paid to teachers in these types of schools. Do secondary teachers earn more than elementary teachers? Do teachers employed in special education, alternative, or vocational schools receive higher pay, all else equal? This chapter addresses these questions by examining the relationship of teacher salaries to teaching level and school type.

## Teaching Level[26]

Table 5.1 presents the results of an analysis of the differences in secondary versus elementary teacher salaries. The actual average salaries of elementary versus secondary public school teachers ranges from 3.4 percent for females to 6.3 percent for males. In the private sector, average secondary teacher salaries exceed elementary salaries by 13.1 percent for females and 14.8 percent for males. That is, the differences between elementary and secondary school teacher salaries are greater in the private than in the public sector.

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[26] A variable indicating the grade level at which the teacher was teaching was used rather than the level of the school.

Controlling for other factors that affect teacher salary differences, secondary teachers earn about 2.5 percent more than elementary teachers in the public sector and about 4.3 percent more than elementary teachers in the private sector. Comparing these figures with the actual differences in salaries (i.e., 3.4 percent to 6.3 percent in the public sector and 13.1 percent to 14.8 percent in the private sector) between secondary and elementary teachers, one can conclude that a greater portion of the private relative to the public sector differences are due to differences in teacher qualifications (e.g., degree level or experience) and school characteristics (e.g., the types of students and their behaviors). The 2.5 and 4.3 percent differences in public and private secondary versus elementary salaries are a result of factors inherent to the jobs which are above and beyond those directly observed in this analysis.

**Table 5.1— Difference in elementary versus secondary teacher salaries, by sector: 1990-91**

| | Public Sector School Teachers | Private Sector School Teachers |
|---|---|---|
| **School Level:** | | |
| Average salary of female: | | |
| elementary school teachers | $28,299 | $15,910 |
| secondary school teachers | $29,259 | $17,992 |
| Percent difference in female secondary v. elementary teachers | 3.4% | 13.1% |
| Average salary of male: | | |
| elementary school teachers | $31,086 | $18,480 |
| secondary school teachers | $33,054 | $21,206 |
| Percent difference in male secondary v. elementary teachers | 6.3% | 14.8% |
| Overall percent difference in secondary v. elementary teachers | 2.5%** | 4.3%* |

Level of significance: *=.05, **=.01. The significance levels test whether these estimates are different from zero.

SOURCE: The parameter estimates from which these percentage estimates are derived are presented in table B.2B in Appendix B. The statistical significance of these effects is based on the probabilities implied in the t-statistics presented in table B.2B for the corresponding parameter estimates. *The datasets used for this analysis include the following*: U.S. Department of Education, National Center for Education Statistics (NCES), Schools and Staffing Survey: 1990-91; U.S. Department of Education, NCES, Common Core of Data (nonfiscal surveys): 1990-91; the Private Schools file: 1990-91; U.S. Department of Commerce, Economics and Statistics Administration, Bureau of the Census, County and City Data Book: 1990; National Climatic Data Center, The World Weather Disc: Climate Data for the Planet Earth.

## School Type

In addition to regular elementary and secondary schools, the SASS database includes samples of teachers employed in special education, vocational/technical, and alternative schools. Table 5.2 shows salary differences for teachers employed in these three types of schools. Once controlling for all of the other characteristics of the teachers and the schools, public school teacher salaries do not vary significantly according to whether they are employed in special education, vocational/technical, or alternative schools.

Among the private school teachers, only the special education private schools had a sample of teachers sufficiently large to warrant an estimate of the salary differential. Table 5.2 shows that teachers employed in private special education schools earn about 36 percent more than teachers in elementary, secondary, or Montessori schools, all else equal. Private special education schools in many states derive revenues through tuition payments made as a result of private contracts with public education agencies who are unable to meet the needs of certain severely disabled student populations. Interestingly enough, a larger percentage of the private special education teachers hold some form of public certification than the rest of the private school teacher population: that is, 76.1 percent of private special education teachers hold some form of state teacher certification, while only about 67 percent of private school teachers as a whole hold some form of state teacher certification. Thus, a greater proportion of private special education teachers have options for employment in the public sector than do other private school teachers because a greater percentage of the special education teachers are certificated.

**Table 5.2— Percentage differences in the salaries of teachers in special schools relative to elementary, secondary, and Montessori (private sector only) schools, by sector: 1990-91**

| School Type | Public Sector School Teachers | Private Sector School Teachers |
|---|---|---|
| Special education | 2.65% | 36.03%** |
| Vocational/technical | 1.11 | (†) |
| Alternative | 4.21 | (†) |

Level of significance: *=.05, **=.01. The significance levels test whether these estimates are different from zero.

† not reported because of insufficient sample size for the cell.

SOURCE: The parameter estimates from which these percentage estimates are derived are presented in table B.2A in Appendix B. The statistical significance of these effects is based on the probabilities implied in the t-statistics presented in table B.2A for the corresponding parameter estimates. *The datasets used for this analysis include the following*: U.S. Department of Education, National Center for Education Statistics (NCES), Schools and Staffing Survey: 1990-91; U.S. Department of Education, NCES, Common Core of Data (nonfiscal surveys): 1990-91; the Private Schools file: 1990-91; U.S. Department of Commerce, Economics and Statistics Administration, Bureau of the Census, County and City Data Book: 1990; National Climatic Data Center, The World Weather Disc: Climate Data for the Planet Earth.

# Chapter 6 Salary Differences Related to Teacher Qualifications and Effort

Teachers bring a variety of levels of experience and educational preparation to the classroom. In addition, they each exert different levels of effort carrying out their duties. To what extent is teacher compensation affected by the level of training, education, and classroom experience they have? (A strong relationship might be expected since the teacher salary scales are traditionally structured according to district longevity and education, as discussed earlier in this report.) A different but related question is also of interest: Does the level of effort have an impact on teacher compensation? The following discussion addresses these questions, focusing on the relationship between teacher salaries and some of the dimensions of experience, education, and effort.

## Years of Experience and Breaks in Service

Three separate measures of experience were utilized in the analysis of salaries: years since first began teaching, total years in the present school, and age of the teacher. In addition, the number of breaks in teaching service are also included in the regression analysis. While one would expect a high correlation among these variables, there was enough independent variation that separate effects were detectable in the statistical analysis. The reason for using all three of these variables is that each represents a different aspect of experience. It is hypothesized that total years since first began teaching is the most important because it reflects the overall maturity in the teaching profession. It represents the acquisition and accumulation of *general knowledge* of the teaching professional that can be applied in any teaching position.

Total years of experience *in the present school* reflect the acquisition of *specific knowledge* of the school and school system within which the individual is employed.[27] While there are similarities among school systems, much of this specific knowledge is not transferrable across systems. Finally, the *age* of the individual reflects the *maturity* and accumulation of general life experiences that might tend to make one more valuable as a teacher.

It was hypothesized in the formulation of the regression model that the incremental value of each type of experience would tend to decrease over time and would finally reach a peak, after which it would decline. The decline in the real wage is often explained by diminishing physical and mental health and the advent of professional burnout as one approaches retirement. Even looking over the life cycle of teachers, one finds that annual longevity salary increments stop after about 12 to 15 years and that further longevity increments are often awarded after a total of 20 or 25 years of teaching. Thus, although teacher salary scales may increase over time, the real wage (actual wage corrected for cost-of-living differences over time) for any given teacher may not continue to rise to retirement because of the truncation of these longevity increments. For these reasons, a curvilinear relationship was specified between salaries and years of experience.[28]

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[27] An alternative measure of job-specific experience would have been total years the individual has been employed in the same district. Since public school teacher salary schedules are generally established at the district level and the teacher's knowledge of specific job-related procedures are likely to apply to all schools within a district, it may have been preferrable to use total years in the district as the measure of job-specific experience. Unfortunately, SASS does not contain any information about the number of years of service in the present district.

Figures 6.1A and 6.1B display these relationships through simulated age-earnings profiles for public and private school teachers. This profile is constructed using the parameter estimates for the linear and quadratic terms for each of the three measures: that is, the teachers' total experience (i.e., years since began teaching), years in the present school, and age (see table B.2A in Appendix B). The effects of all other factors on wages are controlled for (i.e., removed from) the age-earnings profiles in figures 6.1A and 6.1B. Only the effects of the various measures of experience are reflected in these figures. The starting salary is based on the average salary of new teachers at age 24 from the SASS sample. For the sake of simplicity, a perfectly colinear path for the age and experience variables is assumed and runs through a 42-year career to age 66. The vertical axis shows the earnings level for each category of teacher. The horizontal axis traces the age and experience level of the individual teacher. The lower portion of the figure represents the relationship between earnings and total years of teaching experience. The difference between the second and first lines delineates the incremental impact of the years in the school. Finally, the difference between the top line and the second line represents the incremental association between age and earnings. The top line reflects the combined effects of total years since began teaching, years in the present school, and age.

These age-earnings profiles are consistent with the hypotheses and with age-earnings profiles that have been reported in the literature for other professions (e.g., see Hanoch 1967). These estimates show a steady though declining rate of increase in salary until about age 58, after which the real wage declines.

The patterns of differences associated with general and school-specific teaching experience and with teacher age are shown in table 6.1. They show that overall teaching experience contributes the largest proportion (i.e., more than 2 percent in the public sector and approximately 1.6 percent in the private sector) to the annual salary increment. Years in the school add less than 1 percent per year in the public sector and just over 1 percent per year in the private sector. Age adds only about one-sixth of 1 percent per year in the public sector and is not a factor in the private sector. That is, general teaching experience is valued more highly than specific experience in the school, and, in turn, specific teaching experience in the school is more highly valued than general maturity (i.e., as reflected by age) in both the public and private sectors. These results are consistent with economic theory (e.g., see Mincer 1962) and with previous results of analyses of teacher salaries by Chambers (1978c, 1980).

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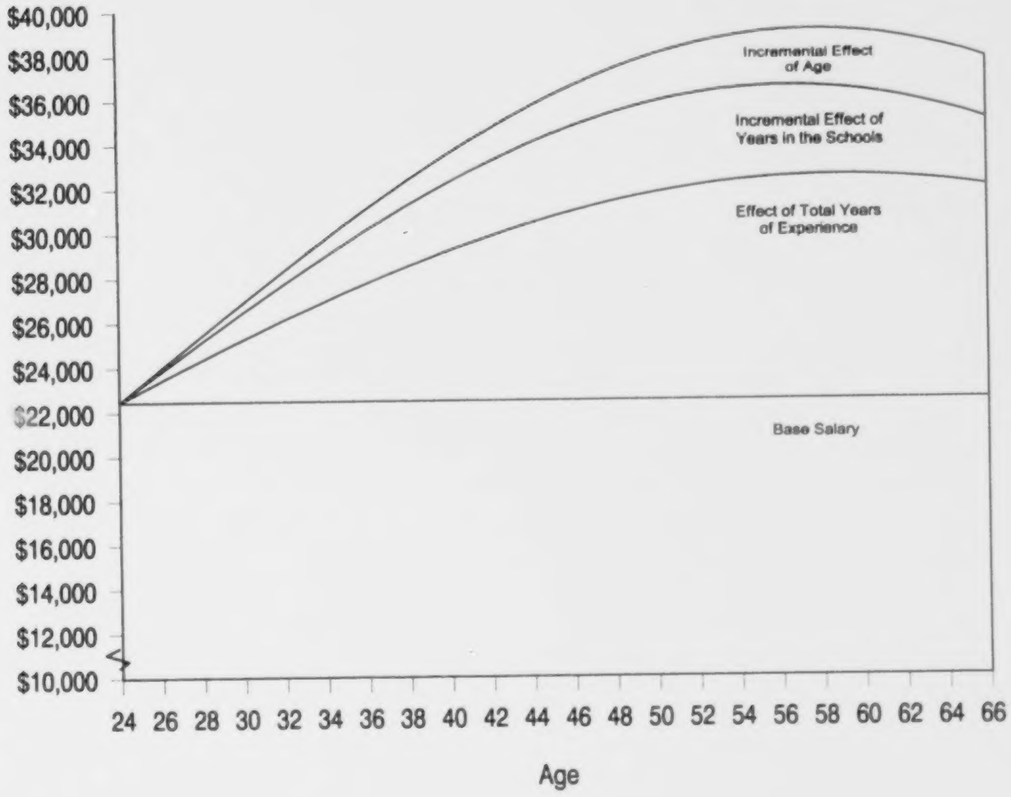
[28] This is accomplished by including a linear and quadratic (or squared) term in the regression equation.

**Figure 6.1a— Age earnings profiles for public school teachers**



Note: Based on the parameter estimates in the public school equation in table B.2A in Appendix B, the increment added on for total years since began teaching (TYR TCH) is as follows:

Salary Increment for $\text{TYR TCH} = 0.0213 \times \text{TYR TCH} - 0.0003 \times \text{TYR TCH}^2$

The increment for years in the present school (TYR SCH) is as follows:

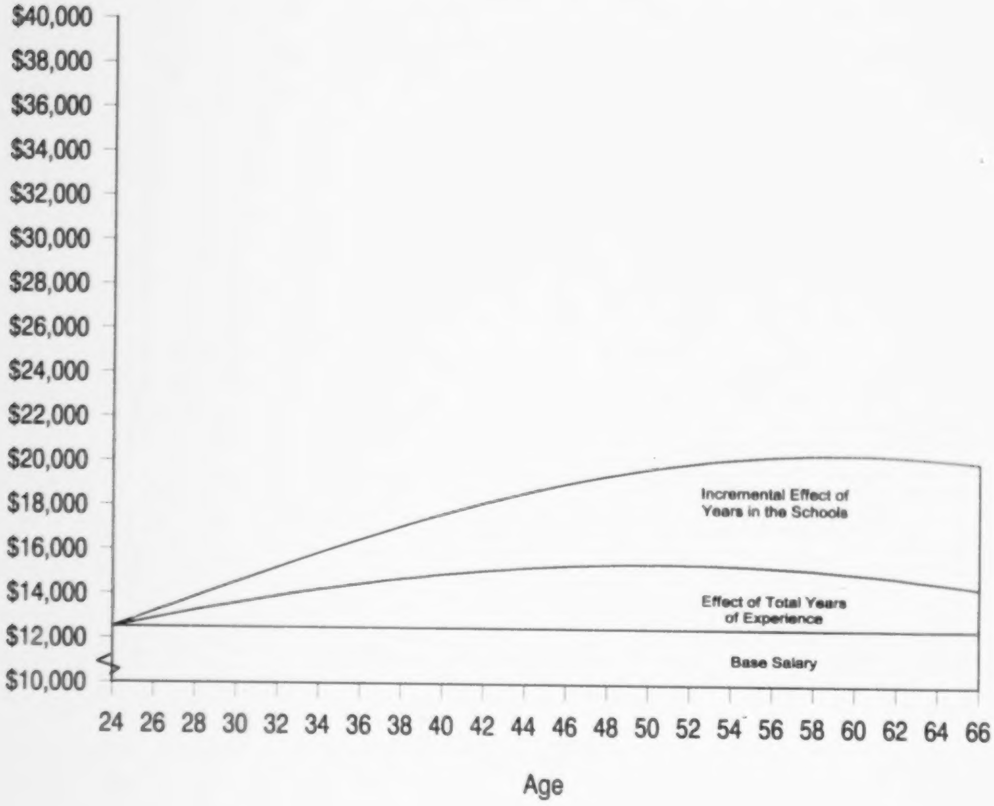
Salary Increment for $\text{TYR SCH} = 0.0087 \times \text{TYR SCH} - 0.0002 \times \text{TYR SCH}^2$

The increment for age (AGE) is as follows:

Salary Increment for $\text{AGE} = 0.0029 \times (\text{AGE}-24) - 0.000025 \times (\text{AGE}-24)^2$

SOURCE: The parameter estimates from which these figures are derived are presented in table B.2A in Appendix B. *The datasets used for this analysis include the following*: U.S. Department of Education, National Center for Education Statistics (NCES), Schools and Staffing Survey: 1990-91; U.S. Department of Education, NCES, Common Core of Data (nonfiscal surveys): 1990-91; the Private Schools file: 1990-91; U.S. Department of Commerce, Economics and Statistics Administration, Bureau of the Census, County and City Data Book: 1990; National Climatic Data Center, The World Weather Disc: Climate Data for the Planet Earth.

**Figure 6.1b— Age earnings profiles for private school teachers**



Note: Based on the parameter estimates in the public school equation in table B.2A in Appendix B, the increment added on for total years since began teaching (TYR TCH) is as follows:

$$\text{Salary Increment for TYR TCH} = 0.0158 \times \text{TYR TCH} - 0.0003 \times \text{TYR TCH}^2$$

The increment for years in the present school (TYR SCH) is as follows:

$$\text{Salary Increment for TYR SCH} = 0.0119 \times \text{TYR SCH} - 0.0001 \times \text{TYR SCH}^2$$

The increment for age (AGE) is not shown since it is not statistically significantly different from zero.

SOURCE: The parameter estimates from which these figures are derived are presented in table B.2A in Appendix B. *The datasets used for this analysis include the following*: U.S. Department of Education, National Center for Education Statistics (NCES), Schools and Staffing Survey: 1990-91; U.S. Department of Education, NCES, Common Core of Data (nonfiscal surveys): 1990-91; the Private Schools file: 1990-91; U.S. Department of Commerce, Economics and Statistics Administration, Bureau of the Census, County and City Data Book: 1990; National Climatic Data Center, The World Weather Disc: Climate Data for the Planet Earth.

**Table 6.1— Additional earnings of public and private school teachers associated with experience and age: 1990-91**

| Type of Experience | Annual Percentage Increment for a New Teacher by Sector: Public | Private |
|---|---|---|
| Years since first teaching position (general teaching experience) | 2.12%** | 1.56%** |
| Years teaching in present school (school-specific experience) | 0.86** | 1.19** |
| Age (as a reflection of teacher maturity) | 0.17* | (†) |

Level of significance: *=.05, **=.01. The significance levels test whether these estimates are different from zero.

† not reported because of insufficient sample size for the cell.

SOURCE: The parameter estimates from which these percentage estimates are derived are presented in table B.2Ain Appendix B. The statistical significance of these effects is based on the probabilities implied in the t-statistics presented in table B.2A for the corresponding parameter estimates. *The datasets used for this analysis include the following*: U.S. Department of Education, National Center for Education Statistics (NCES), Schools and Staffing Survey: 1990-91; U.S. Department of Education, NCES, Common Core of Data (nonfiscal surveys): 1990-91; the Private Schools file: 1990-91; U.S. Department of Commerce, Economics and Statistics Administration, Bureau of the Census, County and City Data Book: 1990; National Climatic Data Center, The World Weather Disc: Climate Data for the Planet Earth.

Another aspect of teaching careers that affects the age-earnings profile is the number of breaks in service of one year or more. The SASS survey asked teachers how many times they stopped teaching to pursue other activities (e.g., raising children or returning to school). Such breaks in service may interrupt the accumulation of human capital (i.e., the general knowledge and skills required for teaching) and are expected to be negatively associated with salary levels. In fact, for public school teachers, each break in service was associated with a 2.87 percent loss of salary (table 6.2).[29] Breaks in service for private school teachers are not related to private school teacher salaries.

## Undergraduate Major

SASS provides several ways to identify potential gaps in the supply of teachers. First, the proportion of positions left vacant due to the lack of fully qualified applicants can be considered. Second, the degree to which classes are staffed with teachers holding temporary, provisional, or emergency certification can be measured. Third, the percentage of teachers assigned to teach subjects for which they are not specifically trained (out-of-field teaching) can be observed.

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[29] No correction is made for the length of the break in service since this information was not known.

**Table 6.2— Public and private school teacher salary differentials associated with breaks in service: 1990-91**

| | Public | Private |
|---|---|---|
| Percentage differential associated with each break in service of 1 year or more | -2.87%** | 0.26% |

Level of significance: *=.05, **=.01. The significance levels test whether these estimates are different from zero.

SOURCE: The parameter estimates from which these percentage estimates are derived are presented in table B.2A in Appendix B. The statistical significance of these effects is based on the probabilities implied in the t-statistics presented in table B.2A for the corresponding parameter estimates. *The datasets used for this analysis include the following*: U.S. Department of Education, National Center for Education Statistics (NCES), Schools and Staffing Survey: 1990-91; U.S. Department of Education, NCES, Common Core of Data (nonfiscal surveys): 1990-91; the Private Schools file: 1990-91; U.S. Department of Commerce, Economics and Statistics Administration, Bureau of the Census, County and City Data Book: 1990; National Climatic Data Center, The World Weather Disc: Climate Data for the Planet Earth.

Salary differentials can be another indicator of teacher shortages. As suggested above, shortages in a field or subject area will result in an upward pressure on the salaries of qualified teachers. Using the hedonic wage model described at the beginning of this report, this translates into additional wages being offered to teach subject areas if shortages exist.[30] For example, education policymakers are concerned that our schools do not have enough qualified mathematics and science teachers to prepare our youth for today's competitive global market (Darling-Hammond and Hudson 1990; Murnane and Raizen 1988). Concurrently, the ongoing effort to provide an equitable education for all students has highlighted the need for special education programs and additional qualified teachers to work with students with disabilities. Consequently, additional wages might be expected to be paid for teachers who majored in mathematics, sciences, and special education.

The SASS Teacher Questionnaire asked respondents to indicate their undergraduate major from an extensive list. For teachers who received their bachelor's degrees in education, the choices included education degrees with a focus in a particular subject area. For example, education majors may have focused on mathematics education, social science education, elementary education, or special education, among other subjects. Categories were provided for several different types of special education. The complete list of undergraduate majors included in the statistical analysis is included in the tables B.1 and B.2 in Appendix B, where the results of the statistical analyses are presented.

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[30] To create this positive effect on wages, teacher shortages do not need to be real. Perceived shortages may often have the same effect.

Table 6.3 highlights the findings of the salary analysis for public and private school teachers in selected majors. The comparison group for this analysis is teachers who majored in elementary education (i.e., all findings are relative to what an elementary education graduate with similar personal and school characteristics earns). Three of the categories of education majors and four of the noneducation majors show higher teacher salaries for public school teachers. Of the education majors, only those teachers who majored in business education, vocational education, and physical education reveal any wage advantage. Among noneducation majors, those teachers who majored in mathematics, music, social sciences, and other miscellaneous subjects reveal a wage advantage.

**Table 6.3— Salaries of teachers with selected undergraduate majors, as a percentage difference from general elementary education majors: 1990-91[a]**

| Variables | Public | Private |
|---|---|---|
| **Education Majors:**[b] | | |
| Mathematics Education | -0.54% | 2.58% |
| Business Education | 1.63* | 1.22 |
| Special Education | 0.84 | 3.84 |
| Physical Education | 4.92** | -0.07 |
| Vocational Education | 3.02** | (†) |
| **Noneducation Majors:** | | |
| Foreign Languages | -0.95 | 5.60* |
| Business | 2.92 | 8.05 |
| Mathematics | 2.37* | 3.09 |
| Music | 4.03* | -13.76* |
| Natural Science | 0.44 | 2.21 |
| Performing Arts | 2.60 | (†) |
| Social Science | 2.17** | -1.99 |
| Other Miscellaneous | 9.53** | (†) |

Level of significance: *=.05, **=.01. The significance levels test whether these estimates of salary differences are significantly different from those of a general elementary undergraduate major.

† Not reported because of insufficient sample sizes in the corresponding cells.

[a] The cells of the table reflect the percentage difference in salary earned by a teacher with the designated undergraduate major relative to a teacher who majored in general elementary education.

[b] It is not clear that respondents to the SASS Teacher Questionnaire sorted themselves properly between noneducation and education majors in the same subject area. If improper sortin did occur, it implies that there is measurement error in these undergraduate major indicators. This kind of measurement error causes the estimates to be biased toward zero. This may result in fewer statistically significant effects among indicators of undergraduate major than might have resulted with no measrurement error.

SOURCE: The parameter estimates from which these percentage estimates are derived are presented in table B.2A in Appendix B. The statistical significance of these effects is based on the probabilities implied in the t-statistics presented in table B.2A for the corresponding parameter estimates. *The datasets used for this analysis include the following:* U.S. Department of Education, National Center for Education Statistics (NCES), Schools and Staffing Survey: 1990-91; U.S. Department of Education, NCES, Common Core of Data (nonfiscal surveys): 1990-91, the Private Schools file: 1990-91; U.S. Department of Commerce, Economics and Statistics Administration, Bureau of the Census, County and City Data Book: 1990; National Climatic Data Center, The World Weather Disc: Climate Data for the Planet Earth.

As expected, public school teachers who majored in *mathematics* received about 2 percent more in salary than teachers who majored in *general elementary education*, all else equal. Wage advantages would be expected for public teachers with natural science and special education majors.[31, 32] Presumably, these teachers would be able to demand higher wages due to the perceived shortage of science and special education teachers. However, contrary to expectations, no such wage advantages are revealed. Teachers who majored in social science receive salaries about 2 percent larger than comparable teachers with general elementary education majors.[33] Almost a 5 percent wage advantage is also evident for physical education (PE) majors.

For private school teachers, salaries do not appear to be related to undergraduate major with the exception of the higher wage noted for those with an undergraduate degree in foreign languages and the significantly lower wage noted for music. The patterns of difference observed in the public sector do not hold up in the private sector.

The results of the analysis of undergraduate majors indicate that at least some of the teachers who would appear to have better private labor market opportunities do show wage advantages, all else equal. Specifically, mathematics majors and those with knowledge and skills in vocational subjects and business receive higher salaries, all else equal. At the same time, some majors like social science, performing arts, music, and the "other miscellaneous" category also reveal wage advantages.[34] The wage advantages associated with physical education may be reflecting the opportunities for the extra pay associated with coaching school sports. Although the SASS data are not sufficient to explore this possibility fully, there is some evidence of this presented in Appendix A (Technical Notes) in the discussion of the *choice of dependent variable*.

### Level of Education (Highest Degree Earned)

Holding all other factors constant, how do teacher salaries vary with degree level? That is, does degree level contribute to differences in teacher salaries? Since level of education is factored into most teacher salary scales, one would expect to find a positive relationship between teacher salaries and degree level. To explore this relationship, the analysis uses six categories of higher education available in the SASS data; each category indicates the highest degree a teacher has earned. Since many teachers have accumulated college credit beyond the current highest

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[31] Included in the natural science category are majors in biological and life sciences, chemistry, geology, physics, and other natural sciences.

[32] The special education category combines teachers trained to work with nine specific disabilities and two general special education categories.

[33] Social sciences include majors in economics, history, political science and government, sociology, psychology, public affairs and services, home economics, and other social sciences.

[34] The "other miscellaneous" category includes general studies, multidisciplinary studies, curriculum and instructions, education administration, counseling and guidances, educational psychology, and other education.

degree level, and since salary contracts often take these additional credits into account along with degree level, the estimated wage advantage associated with highest degree level may tend to overstate the value of any particular degree level. The bachelor's degree is used as a comparison category to determine how much more salary a master's, education specialist, or doctorate degree is worth. Alternatively, having no degree or a 2-year associate of arts degree is expected to be associated with lower teacher salaries.

Table 6.4 presents the results of analysis for all teachers combined (the single-equation model) and the results of the separate analyses for public and private school teachers (the two-equation model). In general, the analysis shows that both public and private school teachers with higher degree levels earn increasingly higher salaries, all else equal. In the public sector, teachers with a master's degree earn 11 percent higher salaries than teachers with a bachelor's degree. Public school teachers with an education specialist certificate (usually requiring 1 or 2 years of education beyond a master's degree) receive about 14 percent higher salaries than those with a bachelor's degree, while teachers with a doctorate earn 17 percent higher salaries. In the private sector, the master's and doctorate degrees are associated with slightly lower wage advantages (i.e., just over 8 percent and just under 14 percent for the master's and doctorate, respectively).

The incentives to invest in additional education are evident, particularly in the public sector. In the public and private sectors combined, moving from a bachelor's degree to a master's degree brings a wage premium of about 11 percent. Continuing on to receive an education specialist degree is worth about 14 percent over a bachelor's degree, and the doctorate is worth over 17 percent above the bachelor's degree.

## Teacher Certification

As described in the previous sections, teacher salary schedules are typically based on longevity (i.e., years of service) and educational preparation (e.g., degree level or hours of graduate credits earned). In many instances, some form of teacher certification serves as a prerequisite for employment and/or advancement on the salary scale (see Tryneski 1992). Based on the SASS Teacher Questionnaire, teacher certification is divided into five categories: advanced professional, standard, probationary, temporary, and no teaching certificate.[35] The analysis compares the salaries of teachers with each level of certification to the salaries of teachers who hold the "standard certificate," all else equal. If certification has a value in the labor market for teachers, higher levels of certification would be associated with higher salaries. For example, teachers with an advanced professional certificate would likely earn a higher wage than teachers with standard certificates; while teachers with probationary, temporary, or no teaching certificates would receive lower wages, all other factors equal.

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[35] The variable from which these certification categories are defined actually refers to certification in main field of assignment. The SASS questionnaires do not actually ask whether or not a teacher is simply certified regardless of the match between certification and assignment. However, the SASS questionnaires do ask if the teacher is certified in at least one other minor assignment field.

**Table 6.4— Salaries of teachers by highest degree earned, as a percentage difference from teachers with bachelor's degrees, by sector: 1990-91[a]**

| Variables | Public/ Private Combined | Public Sector School Teacher | Private Sector School Teacher |
|---|---|---|---|
| No degree | -6.01** | 1.41% | -13.58%** |
| Associate of Arts | -5.31 | 5.42 | -18.78* |
| Master's | 11.33** | 11.31** | 8.20** |
| Education specialist | 14.34** | 13.88** | 14.82** |
| Doctorate | 17.08** | 17.55** | 13.71** |

Level of significance: *=.05, **=.01. The significance levels test whether these estimates are different from zero.

[a] Cells in the table indicate the percentage difference in salaries earned by a teacher who has earned the designated degree relative to one who has earned a bachelor's degree.

SOURCE: The parameter estimates from which these percentage estimates are derived are presented in table B.2A in Appendix B. The statistical significance of these effects is based on the probabilities implied in the t-statistics presented in table B.2A for the corresponding parameter estimates. *The datasets used for this analysis include the following*: U.S. Department of Education, National Center for Education Statistics (NCES), Schools and Staffing Survey: 1990-91; U.S. Department of Education, NCES, Common Core of Data (nonfiscal surveys): 1990-91; the Private Schools file: 1990-91; U.S. Department of Commerce, Economics and Statistics Administration, Bureau of the Census, County and City Data Book: 1990; National Climatic Data Center, The World Weather Disc: Climate Data for the Planet Earth.

Table 6.5 shows the percentage salary differential associated with each level of certification. The salary of teachers with a standard certificate is the base for comparison, since more than 70 percent of the teachers in the SASS sample hold a standard certificate. In the public sector, the certification level *does* have the expected impact on salaries; that is, higher levels of certification are compensated in the public sector. An advanced professional teaching certificate is worth more than a 1 percent salary increment over a standard certificate.[36] A teacher with no teaching certificate earns about a 3 percent lower salary level than teachers with a standard certificate. A probationary certificate is associated with more than a 2 percent salary decrement, while the temporary certificate is not significantly different from the standard certificate.

In contrast, for teachers in the private sector, holding a teaching certificate is not associated with any salary differential. Although certification is commonly required in the public sector, it is not commonly required in the private sector either by individual schools or by state regulations. If certification truly added value to a teacher, one might expect that to be true in private, as well as public schools. The results suggest that other characteristics and qualifications are more important than certification to private school officials who make hiring decisions. Thus, private school teachers are not motivated by economic returns to obtain certification in order to continue teaching in the private sector. At the same time, certification represents, at the very least, an obstacle in most states to moving from the private to the public sector.

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[36] The advanced professional certificate is not common to all states. Only a few states issue any certification above and beyond the "standard certificate."

**Table 6.5— Salaries of teachers with different certificates, as a percentage difference from teachers with a standard certificate, by sector: 1990-91**[a]

| Variables | Public/ Private Combined | Public Sector School Teacher | Private Sector School Teacher |
|---|---|---|---|
| Advanced professional certificate | 1.00%* | 1.25%** | -1.33% |
| Probationary certificate | -2.38* | -2.45* | 0.22 |
| Temporary certificate | -0.85 | -1.04 | 0.66 |
| No certificate | -1.90* | -3.06** | -0.27 |

Level of significance: *=.05, **=.01. The significance levels test whether these estimates are different from zero.

[a] Cells in the table indicate the percentage difference in salaries earned by a teacher who holds the designated teaching certificate relative to one who has a standard certificate.

SOURCE: The parameter estimates from which these percentage estimates are derived are presented in table B.2A in Appendix B. The statistical significance of these effects is based on the probabilities implied in the t-statistics presented in table B.2A for the corresponding parameter estimates. *The datasets used for this analysis include the following:* U.S. Department of Education, National Center for Education Statistics (NCES), Schools and Staffing Survey: 1990-91; U.S. Department of Education, NCES, Common Core of Data (nonfiscal surveys): 1990-91; the Private Schools file: 1990-91; U.S. Department of Commerce, Economics and Statistics Administration, Bureau of the Census, County and City Data Book: 1990; National Climatic Data Center, The World Weather Disc: Climate Data for the Planet Earth.

## Teacher Effort

One dimension of teacher quality is the amount of effort teachers put into their jobs. Working beyond normal school hours to provide additional services to students such as tutoring, coaching sports, or guiding an extracurricular activity is one way that teacher effort can be measured. Assigning homework to students and mentoring less experienced teachers also may involve additional time and effort on the part of teachers. The SASS 1990-91 Teacher Questionnaire asks whether teachers put in additional hours for before- or after-school activities. The average teacher in both the public and private sector spends more than 10 hours per week involved in before- or after-school activities. It is hypothesized that teachers who put the extra time and effort into their jobs will be paid higher salaries, all else equal. That is, if these measures of effort are proxies for, or are associated with, unobserved characteristics related to teacher quality, a wage advantage would be expected.

The percentages in table 6.6 indicate that controlling for other factors, the salaries of both public and private school teachers who spend additional hours in before- or after-school activities are greater than for those who do not. Each additional hour per week is worth about a .1 percent salary increment in the public sector and .2 percent increment in the private sector. For a teacher who spends more than 10 additional hours of effort per week, this would translate into a salary that is 1 percent higher for public school teachers and 2 percent higher for private school teachers, all else equal. The twice larger differential in the private school salaries suggests that private schools reward teachers relatively more than public schools for hours spent beyond the normal work week. However, the absolute dollar value of this differential is small, since private school teachers only earn between 60 and 80 percent of what their public school counterparts earn.

Table 6.6 also indicates that public (but not private) school teachers who assigned homework in the most recent week had larger salaries than those that did not. Finally, while public school teacher salaries show no relationship to whether the teacher is a mentor, private school teachers who are mentors have more than a 6 percent salary advantage over those who are not mentors, all else equal. These estimates are based on a sample that includes approximately 11 percent of teachers in both sectors who are designated as mentor teachers. Apparently, the additional effort and responsibility of being a mentor teacher is associated with higher salaries in the private sector but not in the public sector.

**Table 6.6— Percentage increment in salaries of teachers per additional hour of effort, by sector: 1990-91**

| | Combined | Public Sector School Teachers | Private Sector School Teachers |
|---|---|---|---|
| Nonschool time spent on school related activities (hrs/wk) | 0.13%•• | 0.11%•• | 0.21%•• |
| Assigned homework in most recent week | 1.22• | 1.51•• | -0.61 |
| Is a mentor teacher | 1.52•• | 0.94 | 6.53•• |

Level of significance *=.05, **=.01. The significance levels test whether these estimates are different from zero.

SOURCE: The parameter estimates from which these percentage estimates are derived are presented in table B.2A in Appendix B. The statistical significance of these effects is based on the probabilities implied in the t-statistics presented in table B.2A for the corresponding parameter estimates. *The datasets used for this analysis include the following*: U.S. Department of Education, National Center for Education Statistics (NCES), Schools and Staffing Survey: 1990-91; U.S. Department of Education, NCES, Common Core of Data (nonfiscal surveys): 1990-91; the Private Schools file: 1990-91; U.S. Department of Commerce, Economics and Statistics Administration, Bureau of the Census, County and City Data Book: 1990; National Climatic Data Center, The World Weather Disc: Climate Data for the Planet Earth.

## Summary of Findings

This chapter examines the ways in which teacher salaries vary with years of experience, education levels (i.e., degree and certification), the types of education experiences (i.e., undergraduate major), and the level of teacher effort. Each of these factors reflects a dimension of teacher qualifications that are perceived to affect their productivity in the education work place. In addition, these factors reveal that some of the same dimensions that are associated generally with salary differentials in the labor market also affect the education labor market in similar ways.

In the present study, years of experience is divided into three types: general professional experience, school-specific experience, and general maturity as reflected by age. In much the same way as has been found in other occupational labor markets, this study shows that general professional experience is more important than school-specific (or firm-specific) experience, both of which are more important than general maturity. At the same time, each contributes to the perceived value of a worker—in this case a teacher—and hence are associated with compensation. These relationships were particularly observed in the public sector where the sample was of sufficient size to reveal these distinct effects while controlling for a complex array of other factors that affect salaries. In addition, the age-earning profile showed a similar pattern to what has been observed in other labor market studies—i.e., with wages increasing until the mid-to-late 50s and declining thereafter, all else equal.

Both degree level and certification levels contributed to positive effects on teacher salaries, all else equal, in the public sector. Degree level also had similar effects in the private sector. A master's degree was worth a salary increment of 8 percent in the private sector and 11 percent in the public sector. In addition, higher levels of certification were positively rewarded, all else equal, in the public sector, though no relationship was observed in the private sector. This is consistent with the hypothesis that certification is perceived not to have any perceived value (e.g., in terms of producing "better" teachers) by private school decisionmakers.

In some cases, the type of training received by teachers was associated with salary differentials, at least in the public sector. Holding other factors constant, this study compared teacher salaries across a long list of majors and found that those public school teachers who had undergraduate degrees in mathematics, business, social science, physical education, vocational education, music, and "other miscellaneous" subjects exhibit higher wages. The results suggesting wage advantages for mathematics, business, and vocational education majors are consistent with expectations; these are majors that have ample opportunities outside the education labor market. Physical education majors may have earned salary increments due to additional salaries paid for coaching school sports.

Teacher time and effort as reflected in nonschool time spent on school-related activities and serving as a mentor teacher are shown to be positively associated with salaries, all else equal. Although wage advantages are observed among both public and private school teachers who spend greater amounts of nonschool time on school-related activities, only private school teachers reveal wage advantages associated with being a mentor teacher.

What is important about the results in this chapter is that teacher characteristics above and beyond those typically included in salary scales are shown to be associated with teacher wages. The foundation of hedonic wage theory is that teacher characteristics that are perceived to affect teacher productivity in schools will be implicitly recognized in remuneration. The way this occurs is through the process by which teachers are allocated to specific job assignments. The process results in trade-offs by both teachers and employers that show up as wage advantages. This chapter reveals some of these wage advantages in terms of teacher attributes. The next chapter examines some of the characteristics of the work environment against which teachers may trade off wages.

# Chapter 7 The Impact of Working Conditions on Teacher Salaries

Are teachers willing to trade off salaries to teach in more desirable job environments (e.g., with smaller class sizes or with students who are easier to teach)? This question is addressed by exploring the relationship between teacher salaries and various dimensions of the social and physical work environment and between salaries and an index of class size.

## Social and Physical Work Environment

Table 7.1 presents the results of the analyses of teachers' perceptions of their working environment. The SASS Teacher Questionnaire presents a series of statements to which teachers indicate their level of agreement or disagreement. Each statement taps into the teachers' perceptions of their social and physical work environment. The results are organized into seven composite scales reflecting teachers' perceptions about their work environment. These scales are organized further into three general areas: (a) characteristics of the student population, (b) characteristics of the school environment, and (c) overall job satisfaction. These attributes appear in the first column of table 7.1.[37]

The relationship between teacher salaries and each aspect of the work environment shown in table 7.1 is intended to reflect the trade-off between salaries and working environment. If all other teacher and school characteristics are equal, teachers might be expected to receive additional compensation for working in more difficult environments. Alternatively, schools providing more desirable working environments, on average, would be able to recruit teachers more easily and would be able to pay less than their less desirable counterparts to attract comparably qualified teachers. In other words, because of these supply and demand pressures,

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[37] Based on more than 50 items in the SASS questionnaire, seven indices of the school environment were constructed using factor analysis. These seven indices were included in the salary equations as independent variables, and the results of the analysis are reported in table 7.1. The individual items that formed the seven indices are listed in the technical Appendix A of this report. One reviewer suggested that the use of teacher perceptions of student behaviors or the school environment is an unreliable measure since it makes it difficult to relate one environment to another. The author is not unsympathetic to this view. In fact, it would be preferrable to have more objective measures of the school environment if they were available. Such measures as the number of violent acts (e.g., committed against faculty or other students), the number of acts of vandalism during the course of the previous school year, or percentage of students with drug or alcohol abuse problems would be preferrable to an index of violent student behavior based on teacher perceptions. Unfortunately, no such data are available in the SASS dataset. The analysis presented in the text implicitly assumes that all teachers have a similar basis upon which to base their perceptions. Further research would have to be done to determine how accurate an assumption this is.

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teacher salaries would be expected to be higher on average in schools with less desirable working environments, all other factors equal.[38]

**Table 7.1— Percentage effect of teacher attitudes and perceptions on salaries, by sector, by sex, and by school level: 1990-91**

| Percent difference in salary associated with a one standard deviation increase in the level of the teachers' perceptions of: | Public Sector School Teacher | Private Sector School Teacher |
|---|---|---|
| Student self-abusive behavior | -0.33% | 0.90% |
| Violent student behavior | 0.70** | 0.34 |
| Students' family problems | -1.00** | 0.37 |
| Support within the environment | -0.93** | -0.44 |
| Their control within the environment | 0.31 | 1.43** |
| Their influence in policy | 0.58** | 1.96** |
| Job satisfaction | 0.62** | -1.08* |

Level of significance: *=.05, **=.01. The significance levels test whether these estimates are different from zero.

Note: The percentages are adjusted to reflect the association between teacher salaries and a one standard deviation increase in the presence of the school characteristic described.

SOURCE: The parameter estimates from which these percentage estimates are derived are presented in table B.2A in Appendix B. The statistical significance of these effects is based on the probabilities implied in the t-statistics presented in table B.2A for the corresponding parameter estimates. *The datasets used for this analysis include the following*: U.S. Department of Education, National Center for Education Statistics (NCES), Schools and Staffing Survey: 1990-91; U.S. Department of Education, NCES, Common Core of Data (nonfiscal surveys): 1990-91; the Private Schools file: 1990-91; U.S. Department of Commerce, Economics and Statistics Administration, Bureau of the Census, County and City Data Book: 1990; National Climatic Data Center, The World Weather Disc: Climate Data for the Planet Earth.

**Perceptions of the student population.** Are teacher salaries associated with their perceptions of the student populations they teach? To address this question, this study uses three scales reflecting attributes of the student population: (a) whether students exhibited violent behaviors, (b) whether they have had home and family problems that have hampered their academic success, and (c) whether they exhibit self-destructive behaviors such as absenteeism and/or drug abuse. From the supply-side perspective, teachers might expect to receive higher salaries to teach in environments in which students are more self-abusive, more violent, and have more family problems. From the demand side, employers might believe that a student population with these characteristics would reduce the productivity (effectiveness) of teachers in these environments and hence the incentive for the districts to employ higher quality, more costly teachers. Since it is difficult to ensure that all of the appropriate teacher "quality" attributes are controlled for in this analysis, there is no way *a priori* to predict the direction of the effects on teacher salary of these student characteristics.

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[38] One problem with the variables discussed in this chapter is that in a sufficiently large district, the assignment of teachers to schools is within the control of local decisionmakers. In fact, local school officials may well use the "quality" assignments as ways of compensating "better" teachers. In some local school systems, teacher longevity in a district is used to determine choice of teacher assignments. This policy may be a conscious choice of school district decisionmakers or a result of bargaining agreements with local teacher organizations. Any linkage between priorities for certain school assignments and longevity will interfere with the ability of local decisionmakers to utilize high quality assignments as part of compensation. To the extent that teachers prefer certain types of assignments, one might predict that the "better" teachers would be placed in those assignments as an alternative way of providing compensation since traditional salary scales are tied to degree level and longevity. The problem arises because it is difficult to ensure that differences in teacher quality are adequately controlled for in the analysis. If significant teacher quality attributes are excluded from the analysis, these assignment attributes may well serve as proxies for teacher quality. This makes it difficult to predict *a priori* the magnitudes or the direction of the effects on wages. Another problem with these variables is their subjective nature. These scales rely on the perceptions of the teachers themselves rather than being objective measures of the attributes. Not everyone is going to attach the same meaning to a given point on a scale. One teacher may perceive certain student behaviors to be a problem, while another teacher may not. Thus, the scales may represent different things to different teachers.

As suggested in table 7.1, these perceived characteristics of students show no relationship to teacher salaries in private schools, all other factors equal. However, in public schools, teachers salaries are *higher* (by .70 percent) for teachers who perceive higher levels of violent student behavior, and are *lower* (by -1.00 percent) for teachers who perceive higher levels of students' family problems. (Salaries do not vary with the perceived level of self-abusive behavior by students.) From a supply-side perspective, the effect of violent student behavior is what one expects to find, *a priori;* while the effect of students' family problems is counterintuitive. From a demand-side perspective, this may indicate that "better" teachers (those that might demand higher compensation) end up with assignments in schools where students have fewer family problems.

**Perceptions of school environment.** In addition to student characteristics, a series of items in the SASS questionnaire are related to teachers' sense of control, influence, and support within their own teaching environment. From a supply-side perspective, teachers might be expected to sacrifice wages, all else equal, to teach in environments where they perceive higher levels of support, influence on policy, and sense of control. From a demand-side perspective, school officials may reward "better" teachers by providing them working assignments or environments in which the teachers will tend to enjoy high levels of support, influence, and control.[39] Thus, if teacher quality is not adequately controlled for in the analysis, one might observe higher wages being associated with these job characteristics.

Some of the results shown in table 7.1 are consistent with expectations regarding the relationships between teacher salary and the influence, control, and support they perceive in their working environments; while others are not. In the public sector, lower teacher salaries are associated with higher levels of perceived support (consistent with the supply-side explanation), but with lower levels of teacher influence on policy (consistent with the demand-side explanation and the notion that quality is not adequately controlled). No relationship appears between teacher salaries and their perceived sense of control. In the private sector, higher teacher salaries are associated with higher perceived levels of influence on policy and higher levels of control.

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[39] A more in-depth treatment of the supply- and demand-sides of the hedonic wage model may be found in Chambers (1981b).

**Job satisfaction.** Based on a third group of items on the SASS questionnaire, a scale of the teachers' overall job satisfaction was constructed. The scale includes satisfaction with work and the characteristics of their work environment. The relationship between teacher salaries and job satisfaction might be expected to be either positive or negative. From the teacher's perspective (i.e., supply-side), higher levels of satisfaction might reflect more desirable working conditions, which would be associated with a lower salary; that is, the teacher would sacrifice wages, all else equal, to work in an environment that is associated with a higher level of job satisfaction. On the other hand, from the employer (i.e., demand-side) perspective, more satisfied teachers are likely to be more productive and will garner higher salaries, all else equal.

As shown in table 7.1, higher levels of teacher satisfaction are associated with higher salaries in the public school sector, while just the opposite is true in the private sector. Factors related to overall job satisfaction appear, therefore, to have both supply- and demand-side effects.

### Class Size

One very important dimension of a teacher's work environment is class size. Larger classes may impose a serious increase in the burden of work. Thus, do teachers trade off wages to work with smaller classes? To address this question, an index of the teacher's class size is constructed. The index is an average across all of the classes taught by each teacher and represents the ratio of the individual teacher's class size(s) relative to the national average class size for all teachers in similar subject areas. That is, the class size of a physical education teacher is compared to those of all physical education teachers; the class size of a band teacher is compared to that of other band teachers; and so forth. This approach is used because class sizes vary systematically with the subject area or nature of the class. Elementary classes tend to be of different sizes than secondary classes, and the size of band or chorus classes is different than the size of English or mathematics classes. Using the index calculated for this study, the class size burden is considered within the context of the subject matter taught.

The results reported in table 7.2 generally suggest that teachers do, in fact, trade off wages to work in assignments with smaller classes. In public schools and in public and private schools combined, a 50 percent increase in class size is associated with higher teacher salaries. In the public sector, such a difference (e.g., an increase in an average class size from 20 to 30 students) would be associated with a .50 percent salary increase. Combining the private with the public sector would increase this effect to .85 percent. Estimated separately, however, the private school effect is not statistically significant. Either way this effect is estimated, it seems like a relatively small monetary impact when compared to the perceived burden of working with a larger average class size.

**Table 7.2— Percentage increment in salaries of teachers for a 50 percent increase in class size, by sector: 1990-91**

| | Public and Private Combined | Public Sector | Private Sector |
|---|---|---|---|
| Effect of a 50 percent increase in class size | 0.85%** | 0.50%** | 1.00% |

Level of significance: *=.05, **=.01. The significance levels test whether these estimates are different from zero.
combined effect = exp(0.0209*(ln(1.5)-ln(1.0)))
public sector effect = exp(0.0122*(ln(1.5)-ln(1.0)))
private sector effect = exp(0.0246*(ln(1.5)-ln(1.0)))

SOURCE: The parameter estimates from which these percentage estimates are derived are presented in table B.2A in Appendix B. The statistical significance of these effects is based on the probabilities implied in the t-statistics presented in table B.2A for the corresponding parameter estimates. *The datasets used for this analysis include the following*: U.S. Department of Education, National Center for Education Statistics (NCES), Schools and Staffing Survey: 1990-91; U.S. Department of Education, NCES, Common Core of Data (nonfiscal surveys): 1990-91; the Private Schools file: 1990-91; U.S. Department of Commerce, Economics and Statistics Administration, Bureau of the Census, County and City Data Book: 1990; National Climatic Data Center, The World Weather Disc: Climate Data for the Planet Earth.

## Summary of Findings

This chapter explores the relationship between teacher salaries and the characteristics of the work environment. Controlling for other factors, significant relationships between teacher salaries and work environment are detected. For example, teachers, at least in the public sector, are willing to trade off wages for smaller classes. Public school teacher salaries are higher in work environments exhibiting higher incidence of student violence, fewer family problems, higher levels of teacher influence on policy, lower levels of administrative support, and higher levels of job satisfaction. These effects reflect a mixture of supply- and demand-side perspectives—in some cases being consistent with hypotheses that teachers trade off wages to work in more pleasant work environments, while in other cases being consistent with the hypothesis that these work environment attributes were simply serving as proxies for unobservable measures of teacher quality.

Fewer statistically significant effects of these work environment variables are observed in the private sector. This may be due to the smaller samples of teachers and the associated increased difficulty of isolating such relationships among a large collection of independent variables. On the other hand, it may also reflect the fact that although private school teachers do in fact earn less than public school teachers, private school decisionmakers have more flexibility in the ways in which they compensate teachers. Because private schools are smaller than public school systems, they may tend to rely less on formal, bureaucratically determined, lockstep salary scales tied to degree level and longevity. This may provide more flexibility in utilizing monetary compensation to attract "better" teachers at the margin rather than trading off working conditions in special assignments. Moreover, because private schools are smaller, such trade-offs in teaching assignments may tend to be less possible since there are fewer options. Thus, it may be necessary to recognize productive value more directly with higher compensation. Finally, one could argue that for private school teachers, the trade-off decision is not made between alternative assignments within the private sector, but rather in the decision to teach in private rather than public schools.

More extensive research on these hypotheses are beyond the scope of the present paper and would require further information on other characteristics of teachers that might be associated with "teacher quality." Better measures of teacher quality might include such things as the quality of the colleges attended, scores on entry-level examinations (e.g., Scholastic Aptitude Tests), scores on the National Teacher Examination, or assessments of classroom performance.

# Chapter 8 Summary and Implications

This report has presented information regarding the patterns of variation in the salaries paid to public and private school teachers in relation to various background, personal, and job characteristics. Specifically, this analysis has examined salary differences between public and private school teachers, male and female teachers, teachers of differing racial and ethnic background, elementary and secondary teachers, teachers with different qualifications, and teachers operating in differing work environments. However, it is important to recognize that although each variable or collection of variables is examined in isolation, the results reported in this study are derived from a multivariate analysis that allows the analyst to isolate the impact of each variable while controlling for all of the other factors that affect teacher salaries.[40]

The empirical analyses presented in this report are based upon a conceptual framework that has been used by economists for a number of years to examine the relationship between prices and characteristics of goods and services: namely, hedonic price theory or, in this instance, hedonic wage theory. This conceptual framework builds on the notion that employees care about both the monetary rewards as well as the quality of their work environment, while employers care both about the wages they pay as well as the sets of productive attributes of the individuals they employ. The labor market processes that match employees to employers and ultimately individual workers to job assignments reveals information about these sets of preferences of employers and employees. The result is a set of trade-offs between monetary rewards and the various sets of characteristics of employees and jobs. The analysis explores what schools and school systems value in teachers and, hence, are willing to pay more to acquire. At the same time, it reveals the extent to which teachers are willing to trade off wages to work in more pleasant environments. In essence, this analysis helps illuminate what is important and what matters about teachers, from the viewpoint of school employers, and what matters to teachers.

Hedonic analysis also illuminates the trade-offs, both implicit and explicit, that confront employees. This analysis goes beyond the characteristics that are formally rewarded in salary schedules, such as degree level and longevity, and hence, one of the strengths of hedonic analysis is that it includes both pecuniary and nonpecuniary rewards. That is, such an analysis shows the comparative worth of such attributes as obtaining a graduate degree, teaching smaller class sizes, choosing a career in private as opposed to public education, working in disruptive schools, or putting in more after-school hours.

All employee compensation is a direct and indirect reflection of the forces of supply and demand. Teachers are no exception. Value is shaped by the balance or imbalance between supply, or the degree of availability of some quantity or quality, and demand, or the extent or need for some quantity or quality. From this viewpoint, shortages are a temporary imbalance between supply and demand that will self-correct in the absence of barriers to market forces.

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[40] The foregoing analyses have also controlled for the characteristics of the regions and labor markets within which schools and districts compete for teacher services. These regional and labor market factors and their implications for examining variations in teacher costs are discussed in more detail in a separate report completed under this same task by Chambers (1995) entitled *Public School Teacher Cost Differences Across the United States: An Analysis to Develop a Teacher Cost Index (TCI).*

Increases in compensation are one of the market forces that establish balance. That is, shortages of particular types of teachers or in particular types of schools will be reflected in higher salaries. By isolating what factors are related to higher salaries, hedonic analysis illuminates potential areas and qualities experiencing shortages.

Finally, hedonic wage analysis is a reflection of *"what is"* as opposed to *"what ought to be."* That is, it reveals the current market value of teacher characteristics: what schools are willing to pay for in the market for teachers. It does *not*, however, reveal which characteristics *should* be valued. It does not necessarily provide a guideline to schools of which teacher characteristics are the most productive.

The interpretation of these effects suggests that both supply- and demand-side factors are working and that in some instances they are not easily distinguished from one another. Both objective and subjective measures of the school and work environment have exhibited effects on salaries. In some instances, it is shown that more difficult work environments are associated with wage premiums, all else equal. This suggests that providing similar teacher services to all types of students will require different salary levels for teachers.

Highlights of the findings of this study are presented below.

**Public and Private Sector Salary Differences**

On average, public school teachers earn between about 25 to 119 percent more than private school teachers earn, depending upon the private subsector. Conservative Christian schools followed closely by parochial and other religious-unaffiliated schools are the poorest paying, while Catholic and nonsectarian private or special education schools are the highest paying nonpublic schools. Between about 2 and 50 percent of this public-private difference can be accounted for by differences in teacher characteristics. But can differences in the overall work environment between public and private schools account for the differences in average pay? To some degree, the answer is yes. However, controlling for differences in teacher and school characteristics between the public and private sector, a residual difference is observed in the salaries of teachers that is simply associated with the sector in which the teacher is employed. These public-private salary differences are the result of one or a combination of two alternative forces:

- They reflect unobservable characteristics between the two sectors that make private schools more desirable places to work as evidenced by the wage sacrifice that private school teachers make to remain in the private sector **or**

- They reflect obstacles (e.g., certification requirements) that prevent the free flow of teachers between the two sectors that would ultimately have the impact of equalizing salary levels.

### Differences in Teacher Sex and Racial-Ethnic Background

Despite the fact that sex and race-ethnicity are not accounted for in formal salary scales in the public or private sector, there are some differences in the salaries of teachers associated with sex and racial-ethnic background once other teacher and school characteristics are taken into account. Specifically, white and Hispanic male public school teachers earn statistically significantly higher salaries than their female counterparts. Male public school teachers earn between 10 to 13 percent more than females, on average, and a little more than half of this difference is accounted for by differences in the characteristics of male and female teachers. The remainder of the difference is accounted for by differences in the labor markets for males and females. These results are consistent with other labor market studies of pay differences between males and females in both teaching and other professions and suggests that education labor markets, at least in part, simply reflect trends in the larger labor market for educated labor. Some portion of the male-female differential can be explained by differences in factors surrounding family decisions about labor market mobility. For example, married females receive statistically significantly lower salaries than nonmarried females, while for males, no statistically significant difference associated with marital status is identified, all else equal. This result is consistent with the notion that males tend to dominate household decisions regarding employment with the males seeking their best employment, while married females are limited by the labor markets within which their husbands locate employment.

### Differences in School Level and Type

On average, secondary teachers earn more than elementary school teachers. In the public sector, this amounts to about 3.4 to 6.3 percent, while in the private sector, these differences amount to 13.1 to 14.8 percent. More than half of the difference can be accounted for by differences in the characteristics of elementary and secondary teachers. In the public sector, whether a school was a special education, vocational/technical, or alternative school does not appear to be associated with any wage differences.

### Differences in Teacher Qualifications and Effort

Although traditional teacher salary scales recognize only longevity in the district, the hedonic wage analysis reveals wage differentials associated with three different measures of teacher experience; that is, general teaching experience, school-specific experience, and age each contributes independently to wage differentials. At least in the public sector, each year of general teaching experience is valued more highly (in terms of pay differential) than each year of school-specific experience, which in turn is more highly valued than age (as a reflection of maturity).

The analysis also indicates that investment by teachers in additional education results in higher salaries. Public and private school teachers with higher degree levels earned higher salaries, all else equal. However, only public school teachers benefitted in terms of higher salaries associated with the acquisition of state certification.

At least in the public sector, undergraduate majors such as mathematics, business, and vocational education which prepare teachers for potentially lucrative noneducation sector careers as well as for teaching seemed to be associated with higher teacher salaries, all else equal. This pattern seemed to be less true in the private sector.

Finally, this study revealed that greater amounts of nonschool time spent by teachers on school-related activities are associated with higher public and private school teacher salaries, all else equal. Mentor teachers receive a wage advantage in the private sector, but no relationship is detected in the public sector.

### The Impact of Working Conditions on Teacher Salaries

Teacher salaries are systematically related to certain characteristics of the work environment. Hedonic wage theory would predict that, all else equal, teacher salaries would be higher in schools with more challenging, more difficult, and less desirable work environments. Some of the results are consistent with this hypothesis. For example, public school teachers working in schools that are characterized by higher levels of student violence and lower levels of administrative support are being paid somewhat higher salaries, all else equal. Moreover, larger relative class sizes for individual teachers are also associated with higher salaries, although the effect is relatively small in magnitude. Each of these characteristics of the work environment are associated with greater burdens and hence higher salary levels to compensate for these additional burdens.

Some of the results are opposite of what was hypothesized. For example, public school teachers working in schools which they characterized by fewer family problems, higher levels of influence on policy, and higher job satisfaction also receive higher salaries. One could argue that the "better" teachers are assigned the jobs characterized by these attributes and the inability to capture all of the appropriate teacher quality attributes in the present analysis prevent one from identifying the hypothesized relationships. Indeed, more comprehensive data on teacher attributes believed to be associated with "better" teaching will be needed in the future to determine the potential bias that may be reflected in the present results.

## Concluding Remarks

The forces of supply and demand in the market for teachers play an important role in the determination of teacher salaries. Some of the forces represent general market forces common to all labor markets (e.g., male-female wage differences, the age earnings profiles, and the value of additional education), while some of the factors are clearly unique to the teacher market (e.g., class size effects and the perceptions of student behaviors). The results of the present study are consistent with the hypothesis that a complex array of factors underlie the processes of supply and demand for teachers and hence the determination of salaries. Teachers are not all the same, but are differentiated by their attributes. At the same time, districts and schools are not identical, but rather are differentiated by virtue of the work environment (e.g., types of students) they offer. Although not exhaustive, the present study illustrates some of the systematic patterns of variation in wages in relation to teacher and school characteristics. At the same time, more than 60 percent of the variance in teacher salaries is accounted for by the collection of independent variables included in the statistical analysis.

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# APPENDIX A

# TECHNICAL NOTES

# The Schools and Staffing Survey

The primary data source for this report is the 1990-91 Schools and Staffing Survey (SASS), a nationally representative survey of teachers, principals, and schools conducted by the U.S. Department of Education's National Center for Education Statistics (NCES). The U.S. Census Bureau collected the SASS data for NCES in 1991 using a mail survey. The objective of SASS was to obtain information on the staffing, occupational, and organizational characteristics of schools in the United States.

## Sample Selection[1]

Schools were the primary sampling unit for SASS. Each selected school received a school questionnaire and an administrator questionnaire. Next, a sample of teachers was selected within each school, and each received a teacher questionnaire. A Teacher Demand and Shortage (TDS) questionnaire was sent to the local education agency (LEA) associated with each public selected school. Also, an additional sample of public school districts not associated with the sampled schools received the TDS questionnaire. The private school questionnaire included TDS questions for the school. The sample for the SASS conducted during the 1990-1991 school year included 12,856 schools and administrators, 62,217 teachers, and 5,515 local education agencies.

SASS was designed to provide national estimates for public and private schools; state estimates for public schools; state elementary, state secondary, and national combined estimates for public schools; affiliation- and grade-level estimates for private schools; estimates of change from 1988 to 1991 in school-level characteristics; and national estimates for schools with greater than 25 percent Indian enrollment. The teacher survey was designed to support comparisons between new and experienced teachers. Comparisons between bilingual and nonbilingual teachers are possible at the national level.

### Selection of Schools

The public school sample of 9,586 schools was selected primarily from the 1988-89 school year Common Core of Data (CCD) file. The CCD is based on survey data collected annually by NCES from all state education agencies and is believed to be the most complete list of public schools available. The frame includes regular public schools, Department of Defense operated military base schools, and nonregular schools such as special education, vocational, and alternative schools.

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[1] For a detailed description of the sample design of the 1990-91 SASS, see Kaufman and Huang, 1993.

The private school sample of 3,270 schools was selected primarily from the 1989-90 Private School Survey (PSS) list frame, which was based on the 1989 Quality of Education Data (QED) private school list, updated with 20 private school association lists provided to the Census Bureau in the spring of 1989.

To improve private school coverage, an area frame of schools was developed consisting of 123 sampling units (PSUs) selected with probability proportional to the square root of the PSU population. Within each PSU, a telephone search was conducted to find all in-scope private schools. Sources included yellow pages, religious institutions (except for Roman Catholic religious institutions, because each Catholic diocese is contacted annually when the QED list is updated), local education agencies, chambers of commerce, and local government offices. PSU schools not on the QED file nor the lists from private school associations were listed in the area school frame. From the frame, additional schools were eligible to be selected for the SASS private school sample.

The private school sample was designed to support estimates at the national and affiliation level. The affiliation groups for private schools were determined by the school's orientation or affiliation group listed on the 1988-89 Private Schools Survey (the frame).

## Selection of LEAs

All LEAs that had at least one school selected for the school sample were included in the LEA sample for the TDS Survey. Each Bureau of Indian Affairs and Department of Defense school was defined to be an LEA. Some LEAs did not have schools, but hired teachers who taught in schools in other LEAs. To ensure representation of these teachers, a sample of 135 LEAs without eligible schools was selected. Only 14 of the 135 were actually in scope (that is, were an operating public school agency that reported hiring teachers). All LEAs in Delaware, Nevada, and West Virginia were included to reduce high standard errors in these states. The total LEA sample was 5,515.

## Selection of Teachers

All 56,051 public and 9,166 private school teachers in the teacher samples were selected from the sampled public and private schools. The average number of teachers selected per school was 3.49, 6.98, and 5.23 teachers for public elementary, secondary, and combined schools, respectively, and 3.78, 4.72, and 2.83 teachers for private elementary, secondary, and combined schools, respectively.

## Data Collection

The data were collected for NCES by the United States Bureau of the Census. Questionnaires were mailed to school districts and administrators in December 1990 and to schools and teachers in January and February 1991.[2] Six weeks later, a second questionnaire was sent to each nonrespondent. A telephone follow-up of nonrespondents was conducted between March and June.

## Weighting

Weights of the sample units were developed to produce national and state estimates for public schools, teachers, administrators, and LEAs. The private-sector data were weighted to produce national estimates and affiliation group estimates. The basic weights were the inverse of the probability of selection, and were adjusted for nonresponse and also to adjust the sample totals (based on responding, nonresponding, and out of scope cases) to the frame totals in order to reduce sampling variability.

## Response Rates and Imputation

The final weighted questionnaire response rates were as follows:

| | Public | Private |
|---|---|---|
| SASS: | | |
| Teacher Demand and Shortage | 93.5 | ---- |
| Administrator | 96.7 | 90.0 |
| School | 95.3 | 83.9 |
| Teacher* | 90.3 | 84.3 |
| TFS: | | |
| Former Teachers | 92.4 | 94.1 |
| Current Teachers | 97.4 | 96.2 |

---- not applicable

*The response rates for public school teachers do not include the 5 percent of the public schools that did not provide teacher lists, and the response rates for private school teachers do not include the 11 percent of the private schools that did not provide teacher lists. The effective response rate for public schools was 85.8 percent and for private schools, 75.9 percent.

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[2] Copies of the questionnaires may be obtained by writing to the Special Surveys and Analysis Branch of NCES at the address given at the end of this section.

Values were imputed for items with missing data by: (1) using data from other items on the questionnaire or a related component of the SASS (a school record to impute district data, for example); (2) extracting data from the sample file, such as the CCD or PSS; or (3) extracting data from a respondent with similar characteristics.[3]

## Standard Errors

The estimates in these tables are based on samples and, hence, are subject to sampling variability. Standard errors were calculated to indicate the accuracy of each estimate. If all possible samples of the same size were surveyed under the same conditions, an interval of 1.96 standard error units below to 1.96 standard error units above a particular statistic would include the universe value in approximately 95 percent of the cases. Note, however, that the standard errors do not take into account the effect of biases due to item nonresponse, measurement error, data processing error, or other possible systematic error.

Standard errors were estimated using a balanced repeated replications procedure. Because this procedure incorporates the design features of complex sample surveys, the standard errors are generally higher than those calculated under the assumptions of simple random sampling. Standard errors for selected tables are presented in Appendix C.

## Measures of School Climate

More than 50 items on the SASS teacher questionnaire were designed to gather data on teacher attitudes and perceptions about their work environment. To utilize these variables in the analysis of salaries, it was decided to conduct a factor analysis of these many items to try and identify common patterns of variation as a way of consolidating these items into a smaller number of factors. Seven index variables were constructed based on the results of the factor analysis. Each index variable was calculated on 10-point scale and were designed to represent the values of the component items. Each index variable is listed below along with the component items derived from the SASS teacher questionnaire. The name used in the AIR teacher analysis file is listed along with the scaling calculation and the original item name as listed in the SASS teacher questionnaire.

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[3] For a detailed description of the imputation procedures in the 1990-91 SASS, see Kaufman and Huang 1993, 60-87.

## Indices used for the analysis of the impact of teacher attitudes and perceptions on teacher salaries.

**I_VIOLNC (INDEX-VIOLENT STUDENT BEHAVIOR)** is mean of following variables.

| | |
|---|---|
| PRB_PHYC = 2.5 * tsc258 | PROBLEM: PHYSICAL CONFLICTS AMONG STDNTS |
| PRB_VNDL = 2.5 * tsc260 | PROBLEM: VANDALISM OF SCHOOL PROPERTY |
| PRB_GUNS = 2.5 * tsc264 | PROBLEM: STUDENT POSSESSION OF WEAPONS |
| PRB_PABT = 2.5 * tsc265 | PROBLEM: PHYSICAL ABUSE OF TEACHERS |
| PRB_VABT = 2.5 * tsc266 | PROBLEM: VERBAL ABUSE OF TEACHERS |
| PRB_DSRP = 2.5 * tsc267 | PROBLEM: STUDENT DISRESPECT FOR TEACHERS |
| PRB_RACE = 2.5 * tsc274 | PROBLEM: RACIAL TENSION |
| PRB_CULT = 2.5 * tsc275 | PROBLEM: CULTURAL CONFLICT |

**I_SELFAB (INDEX-STUDENT SELF-ABUSIVE HBVR)** is mean of following variables.

| | |
|---|---|
| PRB_CTCL = 2.5 * tsc257 | PROBLEM: STUDENTS CUTTING CLASS |
| PRB_PRGN = 2.5 * tsc261 | PROBLEM: STUDENT PREGNANCY |
| PRB_ALCH = 2.5 * tsc262 | PROBLEM: STUDENT USE OF ALCOHOL |
| PRB_DRUG = 2.5 * tsc263 | PROBLEM: STUDENT DRUG ABUSE |
| PRB_DRPO = 2.5 * tsc268 | PROBLEM: STUDENTS DROPPING OUT |

**I_SUPORT (INDEX-TEACHERS SUPPORT)** is mean of following variables.

| | |
|---|---|
| SAT_ADMN = 2.5 * tsc224 | SCHOOL ADMIN KNOWS PROBLEMS STAFF FACES |
| SAT_DISP = 2.5 * tsc225 | ALL AT SCHOOL AGREE ON SCHOOL DISCIPLINE |
| SAT_PRNC = 2.5 * tsc227 | PRINCIPAL ENFORCES RULES/BACKS TEACHERS |
| SUP_DISP = 2.5 * tsc237 | SCHOOL AIDS NEW TEACHERS W/ STDNT DISCIP |
| SUP_INST = 2.5 * tsc238 | SCHOOL AIDS NEW TEACHERS W/ INSTR METHOD |
| SAT_BHVR = 2.5 * tsc226 | STDNT BEHAVIOR INTERFERES WITH TEACHING |
| SUP_CURR = 2.5 * tsc239 | SCHOOL AIDS NEW TEACHERS W/ CURRICULUM |
| SUP_ADJT = 2.5 * tsc240 | SCHOOL AIDS NEW TEACHERS W/ ADJUSTING |

**I_TSATSF (INDEX-TEACHERS SATISFACTION)** is mean of following variables.

| | |
|---|---|
| SAT_WORK = 2.5 * tsc222 | I LOOK FORWARD TO WORKING AT THIS SCHOOL |
| SAT_ADVN = 2.5 * tsc232 | TEACHING HAS MORE ADVAN THAN DISADVAN |
| XJOB = 5-SAT_JOB | where (SATJOB=2*TSC233) |
| | TSC233 (WOULD CHANGE JOBS IF COULD) |
| SAT_TAGN = 2.5 * tsc236 | WOULD BECOME A TEACHER AGAIN |

**I_TINFLU (INDEX-TEACHERS INFLUENCE IN POLICY)** is mean of following variables.

| | |
|---|---|
| INFL_CNT = 1.67 * tsc245 | TCHRS INFLU W/ CONTENT OF INSERVICE PGMS |
| INFL_POL = 1.67 * tsc246 | TCHRS INFLU W/ POLICY ON GROUPING STDNTS |
| INFL_CRR = 1.67 * tsc247 | TCHRS INFLU W/ ESTABLISHING CURRICULUM |
| CNTR_TXT = 1.67 * tsc248 | TEACHERS CONTROL SELECT INSTR MATERIAL |

**I_TCNTRL (INDEX-TEACHERS CONTROL)** is mean of following variables.

| | |
|---|---|
| CNTR_TCH = 1.67 * tsc250 | TCHRS CONTROL SELECT TEACHING TECHNIQUES |
| CNTR_GRD = 1.67 * tsc251 | TCHRS CONTROL EVALUATING/GRADING STDNTS |
| CNTR_DIS = 1.67 * tsc252 | TCHRS-CONTROL DISCIPLINING STDNTS |
| CNTR_HWK = 1.67 * tsc253 | TCHRS CONTROL AMOUNT OF HOMEWORK ASSIGND |

**I_STDFAM (INDEX-STUDENTS FAMILY PROBLEMS)** is mean of following variables.

| | |
|---|---|
| PRB_PRNT = 2.5 * tsc271 | PROBLEM: LACK OF PARENT INVOLVEMENT |
| PRB_PALC = 2.5 * tsc272 | PROBLEM: PARENT ALCOHOL &/OR DRUG ABUSE |
| PRB_PVRY = 2.5 * tsc273 | PROBLEM: POVERTY |

## Comments and More Information

SASS and TFS data tapes, survey questionnaires and user's manuals are available from NCES at the address listed below. For an extensive report, summarizing the items used in this investigation and providing an overview of SASS see *Schools and Staffing in the United States: A Statistical Profile, 1990-91* (NCES 93-146) (Choy et al. 1993b).

Schools and Staffing Survey
National Center for Education Statistics
555 New Jersey Avenue, NW
Washington, DC 20208-5651

# Other Data Sources Utilized in the Development of the Analysis File for the Teacher Salary Regressions

**The Nonfiscal Surveys of the Common Core of Data.** These data for the universe of local school districts were used to fill in missing school and district-level information for those teachers in the SASS sample employed in schools or districts that did not complete the SASS school and district questionnaires. Only data on district- and school-level enrollment and race/ethnic composition were utilized for this purpose.

**PSS-Private School File**. This file was utilized to attach the county FIPS code to private schools included in which SASS private school sample. The county FIPS code was used to merge county- and regional-level data from the census to private schools and school teachers.

**County and City Data Book, 1990.** County-level Census files included many of the regional variables utilized in the analysis of regional teacher cost differences. Variables of interest derived from this file are listed below:

Average value of farm land and buildings per acre.
Number of violent crimes known to police (1988)
Civilian labor force unemployment rate (BLS) (1989)
Land area in square miles (1990)
Resident population 1980
Number of physicians per 100,000 population, Number of banks per 100,000 population,

Data were also obtained from Census files on the population of metropolitan areas by aggregating county level data based on the codes for metropolitan areas.

**Geographical Location.** This dataset was requested from the following agency:

Geographic Names Information System (GNIS)
U.S. Geology Survey
523 National Center
Reston, VA 22092

These data were used to attach latitude and longitude data to each central city, cities in the CCD-district file and the CCD-school file. The *Geographic Names Information System* CD-ROM contains the latitude and longitude for most United States cities, towns, and geographic locations. The disc also contains the state and county FIPS codes to facilitate matching to the SASS. These data were used to determine distances between two cities or points for matching certain other data elements (e.g., climate and central city locations) described below.

**Climate Data.** Climatic data were requested from the National Climatic Data Center located in Asheville, North Carolina at the following address:

National Climatic Data Center
Federal Building
37 Battery Park Ave.
Asheville, NC 28801-2696

A series of climatic indicators for almost 300 reporting stations around the country were utilized for this analysis of teacher costs. Using the latitude and longitude of each district and each climatic reporting station, one can calculate the distance to each of the approximately 300 reporting stations and match each district to the nearest reporting station. This was done using the formula for calculating distances on a sphere. The formula for calculating these distances is presented later in this technical Appendix.

*The World Weather Disc: Climate Data for the Planet Earth* is a CD-ROM that contains climatic indicators from the National Climatic Data Center and the National Center for Atmospheric Research. It is produced by Weather Disc Associates, Inc. It contains data from 1951 to 1980. The disc also contains the latitude and longitude of each weather reporting station.

## Calculating Distances on a Sphere

For two of the variables in the analysis of teachers' salaries, it was necessary to calculate distances between locations within the United States. First, in order to assign the appropriate climatic data, it was necessary to identify the closest weather station to each district. Second, in order to capture some of the regional variations related to urban land values and also to assess the remoteness of districts from urban centers, it was necessary to calculate the distances of district offices from various central cities.

For each of these calculations, data on the latitude and longitude of the district offices were derived from the *Geographical Names Information System* by matching the city names to the cities in which district offices were located. The latitude and longitude of the weather stations is reported directly on the climatic database. For each district, the distances were calculated from each weather station and the closest weather station was selected.

A list of central cities was obtained from the Census and utilized to calculate the distances from each district to each and every central city. The closest three cities were selected.

In each case, distances were calculated using the formula for calculating distances on a sphere given data on the latitude and longitude of each location. The procedure is described in the steps specified below.

1. Convert degrees, minutes and seconds to decimal degrees.

   Separate LATITUDE and LONGITUDE in three components:
   DEGREES
   MINUTES
   SECONDS

   Calculate decimal degrees as follows:

```
MINUTES = SUM(MINUTES,SECONDS/60);
DEG_DEC = SUM(DEGREES,MINUTES/60);
```

2. CONVERT DEGREES TO RADIANS.

```
DEG_RAD = DEG_DEC*(3.14159265/180);
```

3. DISTANCE FORMULA

```
* CITY 1 @ LATITUDE=X1, LONGITUDE=Y1
CITY 2 @ LATITUDE=X2, LONGITUDE=Y2;

R=3960; *RADIUS OF THE EARTH;
LABEL R = 'RADIUS OF THE EARTH';

*DISTANCE BETWEEN TWO POINTS;
DISTANCE = R*ARCOS(SIN(X1)*SIN(X2)+COS(X1)*COS(X2)*COS(ABS
(Y1-Y2)));
```

### Construction of Out-of-Field Variable

The measure of out-of-field teaching utilized in this analysis was the percentage of the teacher's entire assignment or class schedule in which they taught in field for which he/she did not have at least a minor in his/her undergraduate program. This measure applies only for secondary teachers providing departmentalized courses. No similar measure is calculated for elementary teachers. For these teachers, a variable indicating that no out-of-field measure was available was included in the analysis. A more detailed discussion of the derivation of this out-of-field variable may be found in Ingersoll (1995).

## Choice of Dependent Variable—Academic and Supplemental Compensation

The dependent variable in this hedonic wage analysis included the sum of the academic year salary (TSC292) plus additional compensation for extra curricular or other activities (TSC294).[4] The purpose of the hedonic wage model is to explain the patterns of variation in the total monetary compensation with respect to the characteristics of teachers, their jobs and job assignments, the schools and districts in which they teach, and the regions in which they live and work. What is the total compensation being offered to each individual in exchange for their services? To use only base pay as the dependent variable ignores one potentially important form of compensation for each individual.

In fact, it is through these various forms of additional compensation that school districts can get around some of the constraints of the lockstep salary scales which are common in public schools. One cannot be sure that the additional compensation is entirely separable from base pay and that it is being paid entirely for the extra curricular activity specified. Is the assignment of teachers to these activities for which they receive additional compensation in any way associated with other teacher attributes or behaviors? These additional assignments and the compensation that goes with them may be a potential way of rewarding teachers who possess other desirable characteristics.

Although it is believed that using only academic salary as the dependent variable in this analysis is not correct, it is still instructive to estimate the same equation as was used in the original analysis, but to replace the dependent variable with the nature log of academic salary only (i.e., excluding extra pay for additional activities). For the sake of simplicity only, the public sector teacher salary equation (from table B.2A) is re-estimated. The parameter estimates for this alternative equation are presented in table B.3, and the coefficients between these two equations are compared. Of the 129 coefficients, 64 change by less than 10 percent. Only 23 change by more than 50 percent and many of these are among the coefficients that are not statistically significant in the original equation. None of the statistically significant variables included in the calculation of the TCI change by more than 20 percent with most changing by substantially less than 10 percent.

Some of the more interesting variables that do change magnitudes when focusing on academic versus total salary payments are listed in table A.1.

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[4] The variable name in parentheses are the names used in the SASS dataset provided by NCES for this analysis.

**Table A.1—** **Coefficients from the equation using log total salary and log academic salary (t-ratios are in parentheses)**

| | Log total salary | Log academic salary |
|---|---|---|
| Teacher is a white male | .05197**<br>(14.39) | .02718**<br>(8.06) |
| BA major is PE | .04803**<br>(7.14) | .01294*<br>(2.00) |
| Teacher is secondary | .02427**<br>(3.10) | .01251<br>(1.48) |
| Nonschool time spent on school related activities | .00107**<br>(5.40) | .00013<br>(0.67) |

Level of significance: *=.05, **=.01. The significance levels test whether these estimates are different from zero.

Note that the coefficients for each of the four variables are smaller in the equation which includes only academic salary in the dependent variable. For example, these results suggest that the academic salary differential between white females and white males is smaller than the overall salary differential when additional pay is included in the dependent variable. The .02718 coefficient implies about a 2.7 percent differential, while the .05197 coefficient implies about a 5.2 percent differential. Nevertheless, in both cases the salary differential for white males is statistically significant. Similarly, the effects of having an undergraduate degree in PE and being a secondary teacher decline when additional pay is excluded from the dependent variable. This suggests that at least some of those who are receiving the additional pay for extra curricular work are white male, PE teachers in high schools. In addition, it appears as though those individuals spending additional non school time on school related activities are also among those who are likely to be receiving additional pay over and above the regular academic salary.

## List of Variables Used in the Simulation of Public and Private School Teachers' Salaries

Table A.2 contains a list of the teacher and school/locational variables utilized to carry out the public and private school teachers' salary simulations.

### Table A.2— List of independent variables

**Variables designated as teacher characteristics include:**

**Individual teacher characteristics (T):**
*sex;*
*racial-ethnic background;*
*marital status;*
*membership in professional teacher or educational organization;*
*age,*
*total years of teaching experience (general experience),*
*total years in the present school (school-specific experience), and*
*number of breaks in service;*
*highest degree level;*
*undergraduate major.*

**Job assignment or classroom (C):**
*percentage of full-time;*
*nature of assignment (itinerate or substitute teacher);*
*index of relative class size for teachers in similar subjects;*
*whether the teacher is a mentor;*
*percentage of time teaching out-of-field;*
*nonschool time spent on school-related activities;*
*whether the teacher assigned homework in the most recent week;*
*percentage of time teaching high- or low-achieving students;*
*a portion of the teachers' work is based on "contributed service"*

**Variables designated as school/locational characteristics include:**

**School (S) characteristics:**
*indices of student behavior and problems;*
*indices of teachers' sense of support, control, influence, and overall satisfaction with their work environment;*
*racial-ethnic composition of the students at the school;*
*percentage students absent on a recent day;*
*school type (i.e., elementary, secondary, special education, vocational, alternative);*
*an index of admission requirements.*

**Regional level (R):**
*percentage of total county enrollment accounted for by the largest district in the county;*
*measures of the distances from the closest central city;*
*percentage change in county population over the past decade;*
*value per acre of farm land;*
*population and density of the county and metropolitan area;*
*county unemployment rate;*
*measures of climatic conditions (mean temperatures and snowfall);*
*county-level crime rates;*
*number of banks per 100-thousand population.*

Continued

**Table A.2— List of independent variables**

**The following district variables are set at the public school values in cases where private school characteristics are substituted into the public school teacher salary equation for simulations.**

**District level (D):**
*racial-ethnic composition of the students in the district;*
*district size as measured by enrollment;*
*percentage growth in enrollment.*

# APPENDIX B

## DESCRIPTIVE STATISTICS AND PARAMETER ESTIMATES FOR THE VARIABLES INCLUDED IN THE TEACHER SALARY REGRESSIONS

## The Hedonic Wage Model

The reduced form of the hedonic wage model used for the analysis of teacher costs may be expressed as follows:

(Eq. 1.1)

$$\ln(SALARY_{ij}) = \hat{\alpha} + \beta_T \cdot T_i + \beta_C \cdot C_i + \beta_S \cdot S_i + \beta_D \cdot D_j + \beta_R \cdot R_j + u_{ij}$$

where i refers to the ith teacher, j refers to the jth district. The Greek symbols appearing in equation 1.1 above are the coefficients (*or parameters*) to be estimated using multivariate regression techniques. The error term in the regression is represented by $u_{ij}$ and is assumed to be normally distributed with mean zero (=0). The terms $T_i$, $C_i$, $S_i$, $D_j$, and $R_j$ are described below.

The dependent variable in this analysis is the natural log of SALARY, which is defined as the annual earnings of the teacher from the school district, including the base academic salary and any additional pay received for special job assignments. The log form of the dependent variable is commonly used for earnings equations such as this one because the hedonic wage function is theoretically specified as a nonlinear equation (Rosen 1974). In addition, the log form also permits easy determination of the percentage effects of the independent variables on the dependent variable—in this case, on teachers' salary levels.[1]

The independent variables listed in table 2.1 are expressed in a variety of mathematical forms:

- dichotomous dummy variables (i.e., variables that designate whether or not a particular characteristic is present). For example, is the teacher a mentor teacher or not? Is the teacher a secondary teacher or not?

- percentages: for example, the percentage growth in enrollment or percentage of students who are classified in a particular racial-ethnic group.

- natural logs (*ln population density*). This is the same form as the dependent variable (i.e., the natural log of teacher salary).

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[1] If additional information could be obtained that would permit placing a value on fringe benefit contributions by the district, equations could be estimated using teacher compensation including salary and benefits. Unfortunately, the SASS database does not currently provide any information regarding how much public or private schools expend for various fringe benefit packages received by teachers. The SASS database does report information on the types of benefits available to teachers and received by them. The dollar value of these benefits, however, is not reported.

It has been suggested by some reviewers that the dependent variable for this analysis should have been academic salary only and that additional pay received for special job assignments should be analyzed separately. This would only be valid if the additional pay and academic salary were truly separable in the employment transaction. This issue is discussed further in the technical Appendix A under *Choice of Dependent Variable*.

- direct measures (i.e., with no transformation): for example, age or total years of teaching experience are entered directly into the equation.

- quadratic terms (i.e., square of another variable). For example, in addition to teacher experience, the variable teacher-experience-squared is also included in the equation. The addition of the squared term permits estimation of curvi-linear relationships.

In the analyses presented in this report, the teacher salary differentials associated with variations in the independent variables are most often presented as percentage effects in the tables. A detailed listing of the mathematical forms used for each independent variable in the regression is presented in the tables of descriptive statistics and parameter estimates for the regression equations presented in this Appendix.

In table B.1, the mean values of the dependent and independent variables included in the salary equation are presented. Table B.2A presents the parameter estimates and corresponding standard errors for three teacher salary regression equations: one for the public/private sectors combined, one for the public sector, and one for the private sector. Table B.2B presents the parameter estimates along with the standard errors for eight equations: four for the public and four for the private sector by level (elementary versus secondary) and within each level by sex (male and females).

**Table B.1— Mean values for dependent and independent variables, by sector, by sex, and by school level: United States, 1990-91**

| | Public Sector School Teachers | | | | | Private Sector School Teachers | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | Elementary | | Secondary | | | Elementary | | Secondary | |
| Variables | All | Male | Female | Male | Female | All | Male | Female | Male | Female |
| LOG(ACADEMIC+SUPPLEMENTAL SALARY,90-91) | 10.30 | 10.34 | 10.25 | 10.41 | 10.28 | 9.77 | 9.82 | 9.67 | 9.96 | 9.80 |
| UNLOG(ACADEMIC+SUPPLEMENTAL SALARY,90-91) | 29709.03 | 31085.79 | 28298.62 | 33054.34 | 29258.54 | 17573.78 | 18480.49 | 15910.10 | 21206.00 | 17991.60 |
| TCHR IS ASIAN | | 0.01 | 0.01 | 0.01 | 0.01 | | 0.02 | 0.02 | 0.01 | 0.01 |
| TCHR IS BLACK | | 0.08 | 0.09 | 0.06 | 0.08 | | 0.03 | 0.03 | 0.02 | 0.02 |
| TCHR IS HISPANIC | | 0.05 | 0.04 | 0.03 | 0.03 | | 0.03 | 0.03 | 0.03 | 0.04 |
| TCHR IS AMERICAN INDIAN/ ALASKAN NATIVE | | 0.00 | 0.01 | 0.01 | 0.01 | | 0.01 | 0.01 | 0.00 | 0.00 |
| TCHR IS ASIAN MALE | 0.00 | | | | | 0.00 | | | | |
| TCHR IS BLACK MALE | 0.02 | | | | | 0.01 | | | | |
| TCHR IS HISPANIC MALE | 0.01 | | | | | 0.01 | | | | |
| TCHR IS AMER IND/ALSKN NATV MALE | 0.00 | | | | | 0.00 | | | | |
| TCHR IS WHITE MALE | 0.25 | | | | | 0.22 | | | | |
| TCHR IS ASIAN FEMALE | 0.01 | | | | | 0.01 | | | | |
| TCHR IS BLACK FEMALE | 0.06 | | | | | 0.02 | | | | |
| TCHR IS HISPANIC FEMALE | 0.03 | | | | | 0.02 | | | | |
| TCHR IS AMER IND/ALSKN NATV FEMALE | 0.01 | | | | | 0.00 | | | | |
| CURRENT MARITAL STATUS | 0.73 | 0.76 | 0.72 | 0.79 | 0.68 | 0.66 | 0.72 | 0.67 | 0.65 | 0.64 |
| MEMBER PROFESS TEACHER/ED ORGANIZATION | 0.85 | 0.84 | 0.85 | 0.85 | 0.85 | 0.57 | 0.53 | 0.54 | 0.56 | 0.62 |

**Table B.1— Mean values for dependent and independent variables, by sector, by sex, and by school level: United States, 1990-91—Continued**

| | Public Sector School Teachers | | | | | Private Sector School Teachers | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | Elementary | | Secondary | | | Elementary | | Secondary | |
| Variables | All | Male | Female | Male | Female | All | Male | Female | Male | Female |
| TEACHES < 1/4 TIME | 0.01 | 0.02 | 0.01 | 0.01 | 0.01 | 0.01 | 0.02 | 0.00 | 0.03 | 0.01 |
| TEACHES AT LEAST 1/4, NOT 1/2 | 0.01 | 0.03 | 0.01 | 0.01 | 0.02 | 0.03 | 0.05 | 0.01 | 0.04 | 0.04 |
| TEACHES AT LEAST 1/2, NOT 3/4 | 0.03 | 0.02 | 0.04 | 0.02 | 0.04 | 0.06 | 0.04 | 0.06 | 0.05 | 0.07 |
| TEACHES AT LEAST 3/4, NOT FULLTIME | 0.01 | 0.01 | 0.01 | 0.01 | 0.02 | 0.03 | 0.02 | 0.02 | 0.02 | 0.06 |
| MAIN ASGNMNT ITINERATE TCHR | 0.04 | 0.06 | 0.04 | 0.02 | 0.03 | 0.01 | 0.01 | 0.00 | 0.01 | 0.01 |
| MAIN ASGNMNT LONG TERM SUBST. TCHR | 0.00 | 0.01 | 0.01 | 0.00 | 0.00 | 0.00 | | 0.00 | 0.00 | 0.00 |
| AGE AS OF 1991 | 42.56 | 43.02 | 42.17 | 43.84 | 42.06 | 41.32 | 38.96 | 41.22 | 40.79 | 42.07 |
| AGE AS OF 1991 - SQUARED | 1901.57 | 1941.21 | 1871.68 | 2009.10 | 1854.71 | 1830.98 | 1640.18 | 1826.61 | 1786.41 | 1884.78 |
| NUM OF BREAKS IN SERVICE OF 1 YR OR MORE | 0.47 | 0.22 | 0.57 | 0.24 | 0.56 | 0.56 | 0.30 | 0.63 | 0.33 | 0.63 |
| YRS SINCE BEGAN TCHNG IN THIS SCHOOL | 9.43 | 9.68 | 8.54 | 11.92 | 8.83 | 6.95 | 6.51 | 6.45 | 8.45 | 6.72 |
| YRS SINCE BEGAN TCHNG IN THIS SCHOOL-SQD | 150.33 | 158.26 | 127.17 | 218.33 | 131.63 | 94.98 | 94.84 | 77.57 | 144.21 | 87.54 |
| YRS SINCE BEGAN FIRST TCHNG POSITION | 17.04 | 16.61 | 16.84 | 17.94 | 16.74 | 15.59 | 14.20 | 15.99 | 14.25 | 16.00 |
| YRS SINCE BEGAN 1ST TCHNG POSITION-SQD | 384.95 | 363.96 | 385.74 | 405.93 | 370.56 | 371.01 | 330.39 | 391.44 | 314.68 | 381.18 |

**Table B.1— Mean values for dependent and independent variables, by sector, by sex, and by school level: United States, 1990-91—Continued**

| | Public Sector School Teachers | | | | | Private Sector School Teachers | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | Elementary | | Secondary | | | Elementary | | Secondary | |
| Variables | All | Male | Female | Male | Female | All | Male | Female | Male | Female |
| BA MAJOR IN EDUCATION-BILINGUAL | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | | 0.00 | 0.00 | 0.00 |
| BA MAJOR IN EDUCATION-EARLY CHILDHD | 0.02 | 0.01 | 0.05 | 0.00 | 0.00 | 0.02 | 0.00 | 0.04 | | 0.00 |
| BA MAJOR IN EDUCATION-GENERAL SECONDARY | 0.02 | 0.01 | 0.01 | 0.03 | 0.04 | 0.02 | 0.03 | 0.01 | 0.03 | 0.03 |
| BA MAJOR IN EDUCATION-SPEC EDUC | 0.06 | 0.04 | 0.08 | 0.01 | 0.06 | 0.02 | 0.02 | 0.03 | 0.01 | 0.03 |
| BA MAJOR IN ART EDUC | 0.01 | 0.01 | 0.01 | 0.02 | 0.03 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 |
| BA MAJOR IN BUSINESS EDUC | 0.02 | 0.01 | 0.01 | 0.03 | 0.06 | 0.01 | 0.02 | 0.01 | 0.01 | 0.02 |
| BA MAJOR IN ENGLISH EDUC | 0.04 | 0.00 | 0.01 | 0.03 | 0.09 | 0.04 | 0.01 | 0.02 | 0.03 | 0.07 |
| BA MAJOR IN FOREIGN LANG EDUC | 0.01 | 0.00 | 0.00 | 0.00 | 0.02 | 0.01 | 0.01 | 0.00 | 0.01 | 0.03 |
| BA MAJOR IN MATH EDUC | 0.02 | 0.01 | 0.00 | 0.05 | 0.04 | 0.02 | 0.00 | 0.00 | 0.04 | 0.03 |
| BA MAJOR IN MISC EDUC | 0.00 | 0.01 | 0.00 | 0.00 | 0.00 | 0.01 | 0.00 | 0.01 | 0.01 | 0.01 |
| BA MAJOR IN MUSIC EDUC | 0.03 | 0.05 | 0.01 | 0.05 | 0.03 | 0.02 | 0.01 | 0.01 | 0.03 | 0.02 |
| BA MAJOR IN NATURAL SCIENCE EDUC | 0.01 | 0.01 | 0.00 | 0.03 | 0.01 | 0.01 | 0.01 | 0.00 | 0.01 | 0.01 |
| BA MAJOR IN PHYSICAL EDUCATION | 0.06 | 0.06 | 0.01 | 0.15 | 0.08 | 0.04 | 0.04 | 0.01 | 0.08 | 0.05 |
| BA MAJOR IN SOCIAL SCI EDUC | 0.02 | 0.00 | 0.01 | 0.00 | 0.05 | 0.01 | | 0.01 | | 0.02 |
| BA MAJOR IN VOCATIONAL EDUC | 0.02 | 0.01 | 0.00 | 0.09 | 0.01 | 0.00 | | 0.00 | 0.01 | |
| BA MAJOR IN ART | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.03 | 0.01 | 0.02 | 0.02 |
| BA MAJOR IN BUSINESS | 0.01 | 0.02 | 0.00 | 0.01 | 0.01 | 0.01 | | 0.00 | 0.02 | 0.00 |
| BA MAJOR IN ENGLISH | 0.04 | 0.03 | 0.02 | 0.04 | 0.08 | 0.05 | 0.07 | 0.03 | 0.05 | 0.09 |
| BA MAJOR IN FOREIGN LANGUAGES | 0.02 | 0.01 | 0.01 | 0.02 | 0.04 | 0.03 | 0.00 | 0.01 | 0.03 | 0.07 |
| BA MAJOR IN HUMANITIES | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.01 | 0.00 | 0.01 | 0.00 |
| BA MAJOR IN MATH | 0.02 | 0.00 | 0.00 | 0.03 | 0.03 | 0.03 | | 0.00 | 0.06 | 0.04 |
| BA MAJOR IN MISCELLANEOUS SUBJECTS | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| BA MAJOR IN MUSIC | 0.01 | 0.02 | 0.00 | 0.02 | 0.01 | 0.01 | 0.01 | 0.01 | 0.03 | 0.01 |
| BA MAJOR IN NATURAL SCIENCES | 0.04 | 0.01 | 0.01 | 0.09 | 0.04 | 0.05 | 0.01 | 0.01 | 0.11 | 0.06 |
| BA MAJOR IN PERFORMING ARTS | 0.00 | 0.00 | 0.00 | 0.00 | 0.01 | 0.00 | 0.00 | 0.00 | 0.00 | 0.01 |
| BA MAJOR IN SOCIAL SCIENCES | 0.08 | 0.13 | 0.07 | 0.12 | 0.08 | 0.12 | 0.19 | 0.08 | 0.24 | 0.11 |
| BA MAJOR IN A VOCATIONAL SUBJECT | 0.01 | 0.01 | 0.00 | 0.01 | 0.01 | 0.00 | 0.00 | 0.00 | 0.01 | 0.00 |

**Table B.1— Mean values for dependent and independent variables, by sector, by sex, and by school level: United States, 1990-91—Continued**

| Variables | Public Sector School Teachers |  |  |  |  | Private Sector School Teachers |  |  |  |  |
|---|---|---|---|---|---|---|---|---|---|---|
|  |  | Elementary |  | Secondary |  |  | Elementary |  | Secondary |  |
|  | All | Male | Female | Male | Female | All | Male | Female | Male | Female |
| HAS ADVANCED PROFESSIONAL TCHG CERTIFICA | 0.15 | 0.14 | 0.14 | 0.15 | 0.16 | 0.07 | 0.03 | 0.06 | 0.07 | 0.08 |
| HAS PROBATIONARY CERTIFICATE | 0.03 | 0.02 | 0.03 | 0.02 | 0.03 | 0.03 | 0.06 | 0.02 | 0.03 | 0.03 |
| HAS TEMPORARY CERTIFICATE | 0.03 | 0.04 | 0.04 | 0.03 | 0.03 | 0.04 | 0.04 | 0.05 | 0.04 | 0.04 |
| NO TCHING CERTIFICATE | 0.03 | 0.03 | 0.02 | 0.03 | 0.03 | 0.33 | 0.47 | 0.27 | 0.43 | 0.34 |
| HIGHEST DEGREE IS NONE | 0.00 | 0.00 | 0.00 | 0.01 | 0.00 | 0.04 | 0.04 | 0.06 | 0.03 | 0.02 |
| HIGHEST DEGREE IS ASSOC ARTS | 0.00 | 0.00 | 0.00 | 0.01 | 0.00 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 |
| HIGHEST DEGREE IS MASTERS | 0.42 | 0.43 | 0.38 | 0.48 | 0.44 | 0.28 | 0.35 | 0.20 | 0.37 | 0.34 |
| HIGHEST DEGREE IS ED SEPC CERT | 0.05 | 0.05 | 0.04 | 0.05 | 0.05 | 0.03 | 0.05 | 0.02 | 0.05 | 0.03 |
| HIGHEST DEGREE IS DOCTORATE | 0.01 | 0.01 | 0.00 | 0.01 | 0.01 | 0.02 | 0.00 | 0.00 | 0.04 | 0.02 |
| TEACHER IS SECONDARY LEVEL | 0.49 |  |  |  |  | 0.51 |  |  |  |  |
| LOG (CLSZINDX) | -0.08 | -0.03 | -0.09 | -0.03 | -0.09 | -0.24 | -0.20 | -0.21 | -0.23 | -0.27 |
| UNLOG (CLSZINDX) | 0.93 | 0.97 | 0.91 | 0.97 | 0.91 | 0.79 | 0.82 | 0.81 | 0.79 | 0.77 |
| CURRENTLY MASTER OR MENTOR TEACHER | 0.11 | 0.11 | 0.11 | 0.12 | 0.10 | 0.11 | 0.07 | 0.10 | 0.14 | 0.10 |
| % TIME TEACHING OUT OF FIELD | 10.55 |  |  | 13.87 | 16.60 | 17.02 |  |  | 24.78 | 27.25 |
| OUT-OF-FIELD VALUE NOT APPLICABLE | 0.54 |  |  | 0.13 | 0.19 | 0.51 |  |  | 0.15 | 0.15 |
| % TCHG TIME W/ HIGH ACHVG STUDENTS | 14.26 | 11.79 | 9.00 | 19.97 | 19.03 | 28.16 | 24.74 | 25.10 | 31.73 | 31.03 |
| % TCHG TIME W/ LOW ACHVG STUDENTS | 20.39 | 19.47 | 21.22 | 16.66 | 22.26 | 5.49 | 4.35 | 3.50 | 6.73 | 7.80 |
| NONSCHL TIME SPENT ON SCH-RELATED ACTVS | 11.14 | 10.02 | 10.16 | 12.82 | 11.67 | 12.06 | 11.75 | 10.71 | 14.28 | 12.58 |
| CONTRIBUTED SERVICE WORK IN THIS SCHOOL |  |  |  |  |  | 0.09 | 0.10 | 0.09 | 0.07 | 0.09 |
| % STDS BOARD AT THIS SCH-PRV. SCH |  |  |  |  |  | 5.78 | 1.76 | 2.35 | 12.29 | 6.89 |

**Table B.1— Mean values for dependent and independent variables, by sector, by sex, and by school level: United States, 1990-91—Continued**

| | Public Sector School Teachers | | | | | Private Sector School Teachers | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | Elementary | | Secondary | | | Elementary | | Secondary | |
| Variables | All | Male | Female | Male | Female | All | Male | Female | Male | Female |
| ASSIGNED HOMEWORK IN RECENT WEEK | 0.41 | 0.68 | 0.71 | 0.08 | 0.11 | 0.40 | 0.79 | 0.73 | 0.07 | 0.09 |
| INDEX-STUDENT SELF-ABUSIVE BHVR | 8.08 | 9.32 | 9.41 | 6.72 | 6.66 | 9.24 | 9.68 | 9.76 | 8.59 | 8.87 |
| INDEX-STUDENTS FAMILY PROBLEMS | 6.08 | 6.27 | 6.26 | 5.94 | 5.84 | 8.36 | 7.99 | 8.61 | 8.04 | 8.22 |
| INDEX-TEACHERS SUPPORT | 5.24 | 5.08 | 5.05 | 5.44 | 5.43 | 4.86 | 4.63 | 4.70 | 5.02 | 5.02 |
| INDEX-TEACHERS CONTROL | 8.78 | 8.53 | 8.75 | 8.70 | 8.93 | 9.09 | 8.81 | 9.05 | 9.10 | 9.17 |
| INDEX-TEACHERS INFLUENCE IN POLICY | 6.14 | 6.01 | 6.11 | 6.21 | 6.14 | 6.88 | 7.14 | 6.82 | 6.98 | 6.89 |
| INDEX-TEACHERS SATISFACTION | 2.37 | 2.54 | 2.14 | 2.66 | 2.50 | 1.83 | 2.00 | 1.66 | 1.97 | 1.97 |
| INDEX-VIOLENT STUDENT BEHAVIOR | 7.89 | 8.20 | 8.23 | 7.63 | 7.47 | 8.99 | 8.89 | 9.19 | 8.79 | 8.85 |
| % STUDENTS ARE: ASIAN/PAC ISL, SCH | 2.60 | 2.59 | 2.65 | 2.50 | 2.58 | 3.91 | 4.88 | 3.24 | 4.47 | 4.51 |
| % STUDENTS ARE: BLACK/NONHISP, SCH | 15.14 | 15.35 | 15.73 | 12.91 | 15.95 | 6.94 | 12.11 | 6.88 | 6.99 | 6.58 |
| % STUDENTS ARE: HISPANIC, SCH | 9.87 | 9.33 | 10.50 | 9.67 | 9.07 | 6.48 | 9.18 | 6.06 | 6.60 | 7.37 |
| % STUDENTS ARE: AM INDIAN/ALASKAN, SCH | 1.10 | 1.48 | 1.13 | 1.08 | 0.99 | 0.47 | 0.92 | 0.37 | 0.60 | 0.46 |
| RACE_ASN*PENRASNS | 0.36 | 0.26 | 0.49 | 0.25 | 0.24 | 0.42 | 0.93 | 0.40 | 0.32 | 0.46 |
| RACE_BLK*PENRBLKS | 4.11 | 4.91 | 4.57 | 2.86 | 4.21 | 1.27 | 2.29 | 1.63 | 1.11 | 0.68 |
| RACE_HIS*PENRHISS | 1.60 | 2.48 | 2.00 | 1.17 | 1.09 | 0.76 | 0.15 | 0.77 | 0.53 | 1.01 |
| RACE_NAT*PENRNATS | 0.11 | 0.10 | 0.14 | 0.09 | 0.09 | 0.03 | 0.25 | 0.01 | 0.07 | 0.02 |
| % STUDENTS ABSENT ON A RECENT DAY, SCH | 6.37 | 5.50 | 5.28 | 7.54 | 7.44 | 4.50 | 4.33 | 4.64 | 4.41 | 4.36 |

**Table B.1— Mean values for dependent and independent variables, by sector, by sex, and by school level: United States, 1990-91—Continued**

| Variables | Public Sector School Teachers | | | | | Private Sector School Teachers | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | Elementary | | Secondary | | | Elementary | | Secondary | |
| | All | Male | Female | Male | Female | All | Male | Female | Male | Female |
| CATHOLIC-DIOCESAN | | | | | | 0.14 | 0.04 | 0.12 | 0.14 | 0.18 |
| CATHOLIC-PAROCHIAL | | | | | | 0.22 | 0.11 | 0.30 | 0.11 | 0.19 |
| CATHOLIC-PRIVATE | | | | | | 0.09 | 0.01 | 0.02 | 0.15 | 0.15 |
| NONSECTARIAN-REGULAR | | | | | | 0.13 | 0.15 | 0.09 | 0.19 | 0.14 |
| NONSECTARIAN-SPECIAL EMPHASIS | | | | | | 0.04 | 0.06 | 0.04 | 0.05 | 0.04 |
| NONSECTARIAN-SPECIAL EDUCATION | | | | | | 0.03 | 0.02 | 0.02 | 0.04 | 0.03 |
| OTHER RELIGIOUS-AFFILIATED | | | | | | | | | | |
| OTHER RELIGIOUS-UNAFFILIATED | | | | | | 0.07 | 0.07 | 0.08 | 0.06 | 0.06 |
| OTHER RELIGIOUS-CONSERVATIVE CHRISTIAN | | | | | | 0.12 | 0.18 | 0.13 | 0.12 | 0.09 |
| SCHOOL IS ALL FEMALE | | | | | | 0.05 | | 0.01 | 0.03 | 0.13 |
| SCHOOL IS ALL MALE | | | | | | 0.04 | 0.00 | 0.00 | 0.15 | 0.03 |
| SCHOOL IS SPECIAL EDUCATION | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.04 | 0.05 | 0.03 | 0.05 | 0.04 |
| SCHOOL IS VOCATIONAL/TECH | 0.01 | 0.00 | 0.00 | 0.02 | 0.01 | 0.00 | | | 0.00 | 0.00 |
| SCHOOL IS ALTERNATIVE | 0.01 | 0.00 | 0.00 | 0.02 | 0.02 | 0.02 | 0.01 | 0.02 | 0.04 | 0.01 |
| INDEX OF ADMISSION REQUIREMENTS | 0.19 | 0.14 | 0.14 | 0.25 | 0.24 | 1.11 | 1.06 | 1.01 | 1.23 | 1.21 |
| LOG OF STDT ENROLLMENT FOR THE SCHOOL | | | | | | 5.57 | 5.11 | 5.35 | 5.82 | 5.79 |
| UNLOG OF STDT ENROLLMENT FOR THE SCHOOL | | | | | | 262.44 | 165.38 | 210.58 | 338.20 | 328.10 |
| DIST ENROLLMENT:501-1,000 | 0.06 | 0.06 | 0.06 | 0.07 | 0.06 | | | | | |
| DIST ENROLLMENT:1,001-5,000 | 0.34 | 0.36 | 0.32 | 0.37 | 0.33 | | | | | |
| DIST ENROLLMENT:5,001-10,000 | 0.16 | 0.14 | 0.16 | 0.17 | 0.16 | | | | | |
| DIST ENROLLMENT:10,001-25,000 | 0.16 | 0.17 | 0.17 | 0.15 | 0.16 | | | | | |
| DIST ENROLLMENT:25,001-50,000 | 0.08 | 0.08 | 0.09 | 0.06 | 0.09 | | | | | |
| DIST ENROLLMENT:50,001-100,000 | 0.06 | 0.06 | 0.07 | 0.05 | 0.07 | | | | | |
| DIST ENROLLMENT:MORE THAN 100,000 | 0.09 | 0.10 | 0.09 | 0.08 | 0.09 | | | | | |

**Table B.1— Mean values for dependent and independent variables, by sector, by sex, and by school level: United States, 1990-91—Continued**

| | Public Sector School Teachers | | | | | Private Sector School Teachers | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | Elementary | | Secondary | | | Elementary | | Secondary | |
| Variables | All | Male | Female | Male | Female | All | Male | Female | Male | Female |
| % DIST K-12 STDS: ASIAN/PACFC ISL | 2.74 | 2.91 | 2.82 | 2.63 | 2.66 | | | | | |
| % DIST K-12 STDS: BLACK NONHISPNC | 14.69 | 13.84 | 15.13 | 12.84 | 15.67 | | | | | |
| % DIST K-12 STDS: HISPANIC | 10.07 | 10.59 | 10.45 | 9.75 | 9.57 | | | | | |
| % DIST K-12 STDS: AMIND/ALASKAN | 1.09 | 1.38 | 1.10 | 1.11 | 0.98 | | | | | |
| RACE_ASN*PENRASND | 0.33 | 0.21 | 0.44 | 0.24 | 0.24 | | | | | |
| RACE_BLK*PENRBLKD | 3.58 | 3.94 | 3.91 | 2.59 | 3.75 | | | | | |
| RACE_HIS*PENRHISD | 1.45 | 2.39 | 1.72 | 1.09 | 1.09 | | | | | |
| RACE_NAT*PENRNATD | 0.10 | 0.09 | 0.13 | 0.08 | 0.08 | | | | | |
| % CHG IN DIST. ENR 89 TO 90, DIS | 1.79 | 1.93 | 1.84 | 1.68 | 1.78 | | | | | |
| % OF TOT ENR FOR LARGEST DIST ENR | 54.22 | 50.30 | 54.83 | 51.92 | 55.93 | | | | | |
| CLOSEST CENTRAL CITY IS 10-20 MILES | 0.22 | 0.23 | 0.22 | 0.22 | 0.22 | | | | | |
| CLOSEST CENTRAL CITY IS 20-40 MILES | 0.21 | 0.19 | 0.20 | 0.22 | 0.22 | | | | | |
| CLOSEST CENTRAL CITY IS 40-80 MILES | 0.16 | 0.13 | 0.16 | 0.15 | 0.16 | | | | | |
| CLOSEST CENTRAL CITY IS 80-160 MILES | 0.05 | 0.05 | 0.05 | 0.06 | 0.04 | | | | | |
| CLOSEST CENTRAL CITY IS > 160 MILES | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.00 | | 0.00 | | 0.00 |
| DISTRICT < 75 MILES OF 2 CENTRAL CITIES | 0.15 | 0.14 | 0.16 | 0.15 | 0.15 | | | | | |
| DISTRICT < 75 MILES OF 3 CENTRAL CITIES | 0.64 | 0.67 | 0.62 | 0.65 | 0.65 | | | | | |
| % CHANGE, COUNTY POPULATION 1980-90 | 10.50 | 9.80 | 11.01 | 9.25 | 10.82 | 8.89 | 10.03 | 9.15 | 8.96 | 8.23 |

**Table B.1— Mean values for dependent and independent variables, by sector, by sex, and by school level: United States, 1990-91—Continued**

| | Public Sector School Teachers | | | | | Private Sector School Teachers | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | Elementary | | Secondary | | | Elementary | | Secondary | |
| Variables | All | Male | Female | Male | Female | All | Male | Female | Male | Female |
| LOG AVG VALUE FARM LAND/BLDG/ACRE, 87 | 7.13 | 7.16 | 7.12 | 7.14 | 7.14 | 7.36 | 7.44 | 7.32 | 7.43 | 7.40 |
| UNLOG AVG VALUE FARM LAND/BLDG/ACRE, 87 | 1253.88 | 1282.63 | 1241.29 | 1257.78 | 1266.33 | 1576.95 | 1705.97 | 1511.82 | 1687.93 | 1629.24 |
| NAT LOG COUNTY POPULATION DENSITY, 1990 | 5.65 | 5.65 | 5.65 | 5.59 | 5.70 | 6.45 | 6.45 | 6.32 | 6.58 | 6.67 |
| UNNAT LOG COUNTY POPULATION DENSITY, 1990 | 283.37 | 284.79 | 283.45 | 266.57 | 297.71 | 634.31 | 634.53 | 557.28 | 718.33 | 784.48 |
| SQR OF NAT LOG CNTY POP DENSITY, 1990 | 35.23 | 35.42 | 35.10 | 34.79 | 35.77 | | | | | |
| NAT LOG COUNTY POPULATION, 1990 | | | | | | 12.87 | 12.97 | 12.77 | 12.89 | 13.04 |
| UNNAT LOG COUNTY POPULATION, 1990 | | | | | | 389512.21 | 430231.75 | 351168.51 | 397353.42 | 460133.25 |
| LOG POP MSA/PMSA AREA OR NONMET COUNTY | 12.76 | 12.81 | 12.76 | 12.71 | 12.80 | | | | | |
| UNLOG POP MSA/PMSA AREA OR NONMET COUNTY | 348793.58 | 366582.29 | 348902.11 | 329762.74 | 361478.02 | | | | | |
| SQR OF LOG POP MSA/PMSA AREA/NONMET CO | 166.63 | 167.58 | 166.53 | 165.45 | 167.56 | | | | | |
| CIVILIAN LABOR FORCE UNEMPLOYMENT RATE,8 | 5.62 | 5.79 | 5.67 | 5.57 | 5.52 | 5.10 | 5.07 | 5.12 | 4.98 | 5.15 |
| MEAN TEMPERATURE (30 YRS NORMAL) | 56.15 | 54.45 | 56.63 | 55.08 | 56.58 | | | | | |
| AVG SNOW IN. (30 YRS NORMAL) | 23.16 | 28.53 | 22.06 | 25.55 | 21.93 | | | | | |
| # OF BANKS PER 100,000 POPULATION, 86 | 10.05 | 9.16 | 9.69 | 10.86 | 10.18 | 7.37 | 8.07 | 7.78 | 7.80 | 6.29 |
| # VIOLENT CRIMES PER 100,000 POPULATION, | 523.50 | 525.50 | 526.72 | 512.89 | 526.40 | 624.60 | 666.48 | 590.72 | 661.20 | 663.28 |

SOURCE: U.S. Department of Education, National Center for Education Statistics (NCES), Schools and Staffing Survey: 1990-91; U.S. Department of Education, NCES, Common Core of Data (nonfiscal surveys): 1990-91; the Private Schools file: 1990-91; U.S. Department of Commerce, Economics and Statistics Administration, Bureau of the Census, County and City Data Book: 1990; National Climatic Data Center, The World Weather Disc: Climate Data for the Planet Earth.

**Table B.2A— Parameter estimates for teacher salary regression equations, by sector**

| | Public/ Private Combined | Public Sector School Teacher | Private Sector School Teacher |
|---|---|---|---|
| INTERCEPT | 9.8678$^{**}$ | 9.8997$^{**}$ | 8.5693$^{**}$ |
| | (73.3372) | (61.6316) | (57.0382) |
| TCHR IS ASIAN MALE | 0.0337 | 0.0256 | -0.0320 |
| | (1.8265) | (1.1800) | (-0.2051) |
| TCHR IS BLACK MALE | 0.0153 | 0.0090 | 0.1057 |
| | (1.1440) | (0.6747) | (1.3785) |
| TCHR IS HISPANIC MALE | 0.0727$^{**}$ | 0.0574$^{**}$ | 0.1374 |
| | (3.5546) | (2.7572) | (1.5526) |
| TCHR IS AMER IND/ALSKN NATV MALE | 0.0180 | -0.0051 | 0.2698 |
| | (0.3388) | (-0.0926) | (1.5276) |
| TCHR IS WHITE MALE | 0.0627$^{**}$ | 0.0520$^{**}$ | 0.1086$^{**}$ |
| | (16.8494) | (14.3907) | (6.2942) |
| TCHR IS ASIAN FEMALE | 0.0141 | 0.0216 | -0.0625 |
| | (1.1567) | (1.3379) | (-1.6103) |
| TCHR IS BLACK FEMALE | -0.0114 | -0.0195 | 0.0518 |
| | (-0.9929) | (-1.3997) | (1.1664) |
| TCHR IS HISPANIC FEMALE | 0.0110 | 0.0020 | 0.0386 |
| | (0.7489) | (0.1197) | (0.8136) |
| TCHR IS AMER IND/ALSKN NATV FEMALE | -0.0293 | -0.0408 | 0.1278 |
| | (-1.5272) | (-1.9281) | (1.0086) |
| CURRENT MARITAL STATUS | -0.0096$^{**}$ | -0.0124$^{**}$ | 0.0167 |
| | (-2.7443) | (-3.4765) | (1.5589) |
| MEMBER PROFESS TEACHER/ED ORGANIZATION | 0.0395$^{**}$ | 0.0333$^{**}$ | 0.0487$^{**}$ |
| | (8.2018) | (6.4388) | (3.9765) |

**Table B.2A— Parameter estimates for teacher salary regression equations, by sector—Continued**

| | Public/ Private Combined | Public Sector School Teacher | Private Sector School Teacher |
|---|---|---|---|
| TEACHES < 1/4 TIME | $-0.6497^{**}$ | $-0.6147^{**}$ | $-0.7399^{**}$ |
| | (-10.5335) | (-7.9069) | (-5.2828) |
| TEACHES AT LEAST 1/4, NOT 1/2 | $-0.5329^{**}$ | $-0.5127^{**}$ | $-0.5656^{**}$ |
| | (-18.3917) | (-14.1326) | (-9.2099) |
| TEACHES AT LEAST 1/2, NOT 3/4 | $-0.4247^{**}$ | $-0.4233^{**}$ | $-0.3964^{**}$ |
| | (-26.5664) | (-23.5724) | (-13.7153) |
| TEACHES AT LEAST 3/4, NOT FULLTIME | $-0.2668^{**}$ | $-0.2549^{**}$ | $-0.2205^{**}$ |
| | (-13.6815) | (-11.8710) | (-7.3971) |
| MAIN ASGNMNT ITINERATE TCHR | $0.3583^{**}$ | $0.3475^{**}$ | -0.0508 |
| | (15.0993) | (13.6509) | (-0.4173) |
| MAIN ASGNMNT LONG TERM SUBST. TCHR | $-0.1408^{**}$ | $-0.1693^{**}$ | 0.1611 |
| | (-3.7193) | (-4.5205) | (0.8374) |
| AGE AS OF 1991 | 0.0012 | $0.0029^{*}$ | -0.0028 |
| | (0.8697) | (1.9774) | (-0.5893) |
| AGE AS OF 1991 - SQUARED | $-7.7 \times 10^{-6}$ | $-2.5 \times 10^{-5}$ | $1.2 \times 10^{-5}$ |
| | (-0.5007) | (-1.6115) | (0.2431) |
| NUM OF BREAKS IN SERVICE OF 1 YR OR MORE | $-0.0250^{**}$ | $-0.0291^{**}$ | 0.0026 |
| | (-9.1060) | (-10.3988) | (0.3031) |
| YRS SINCE BEGAN TCHNG IN THIS SCHOOL | $0.0091^{**}$ | $0.0087^{**}$ | $0.0119^{**}$ |
| | (10.6612) | (9.7954) | (5.1124) |
| YRS SINCE BEGAN TCHNG IN THIS SCHOOL-SQD | $-0.0001^{**}$ | $-0.0002^{**}$ | -0.0001 |
| | (-5.1976) | (-5.1090) | (-1.2898) |
| YRS SINCE BEGAN FIRST TCHNG POSITION | $0.0215^{**}$ | $0.0213^{**}$ | $0.0158^{**}$ |
| | (25.1261) | (23.5312) | (7.9791) |
| YRS SINCE BEGAN 1ST TCHNG POSITION-SQD | $-0.0003^{**}$ | $-0.0003^{**}$ | $-0.0003^{**}$ |
| | (-15.1727) | (-12.4082) | (-6.1112) |

**Table B.2A— Parameter estimates for teacher salary regression equations, by sector—Continued**

| | Public/ Private Combined | Public Sector School Teacher | Private Sector School Teacher |
|---|---|---|---|
| BA MAJOR IN EDUCATION-BILINGUAL | 0.0021 | -0.0139 | 0.0234 |
| | (0.1267) | (-0.7685) | (0.2750) |
| BA MAJOR IN EDUCATION-EARLY CHILDHD | 0.0131 | 0.0118 | 0.0423 |
| | (1.5322) | (1.2367) | (1.6579) |
| BA MAJOR IN EDUCATION-GENERAL SECONDARY | -0.0031 | 0.0043 | -0.0369 |
| | (-0.3273) | (0.4548) | (-0.8215) |
| BA MAJOR IN EDUCATION-SPEC EDUC | 0.0161 | 0.0083 | 0.0377 |
| | (1.7817) | (0.9377) | (0.9736) |
| BA MAJOR IN ART EDUC | -0.0002 | -0.0060 | -0.0099 |
| | (-0.0142) | (-0.4723) | (-0.1928) |
| BA MAJOR IN BUSINESS EDUC | 0.0158* | 0.0162* | 0.0121 |
| | (2.0374) | (2.0847) | (0.2090) |
| BA MAJOR IN ENGLISH EDUC | -0.0048 | -0.0062 | 0.0111 |
| | (-0.5307) | (-0.6836) | (0.4159) |
| BA MAJOR IN FOREIGN LANG EDUC | 0.0014 | -0.0176 | 0.0710 |
| | (0.0688) | (-0.9791) | (1.5445) |
| BA MAJOR IN MATH EDUC | -0.0031 | -0.0054 | 0.0255 |
| | (-0.2904) | (-0.4674) | (0.7615) |
| BA MAJOR IN MISC EDUC | -0.0246 | 0.0093 | -0.1127 |
| | (-1.0453) | (0.4298) | (-1.5348) |
| BA MAJOR IN MUSIC EDUC | 0.0127 | 0.0178 | 0.0207 |
| | (0.9078) | (1.1863) | (0.4159) |
| BA MAJOR IN NATURAL SCIENCE EDUC | -0.0112 | -0.0146 | 0.0566 |
| | (-0.7487) | (-1.0655) | (0.8420) |
| BA MAJOR IN PHYSICAL EDUCATION | 0.0426** | 0.0480** | -0.0007 |
| | (6.1103) | (7.1449) | (-0.0227) |
| BA MAJOR IN SOCIAL SCI EDUC | -0.0123 | -0.0087 | -0.0927 |
| | (-1.0724) | (-0.8331) | (-1.2211) |
| BA MAJOR IN VOCATIONAL EDUC | 0.0188* | 0.0298** | 0.1472 |
| | (2.1488) | (3.2566) | (1.4235) |
| BA MAJOR IN ART | 0.0077 | 0.0015 | -0.0006 |
| | (0.4040) | (0.0699) | (-0.0158) |
| BA MAJOR IN BUSINESS | 0.0339* | 0.0288 | 0.0830 |
| | (2.1713) | (1.9524) | (1.3058) |

**Table B.2A— Parameter estimates for teacher salary regression equations, by sector—Continued**

| | Public/ Private Combined | Public Sector School Teacher | Private Sector School Teacher |
|---|---|---|---|
| BA MAJOR IN ENGLISH | 0.0074 | 0.0086 | -0.0064 |
| | (0.8096) | (0.9310) | (-0.2712) |
| BA MAJOR IN FOREIGN LANGUAGES | 0.0047 | -0.0095 | 0.0545* |
| | (0.3660) | (-0.6096) | (2.0137) |
| BA MAJOR IN HUMANITIES | 0.0022 | -0.0224 | -0.0173 |
| | (0.0668) | (-0.7218) | (-0.2635) |
| BA MAJOR IN MATH | 0.0283** | 0.0234* | 0.0304 |
| | (2.6424) | (2.1903) | (1.0359) |
| BA MAJOR IN MISCELLANEOUS SUBJECTS | 0.0933** | 0.0910** | 0.0660 |
| | (4.7402) | (5.1368) | (0.6789) |
| BA MAJOR IN MUSIC | 0.0224 | 0.0395* | -0.1480* |
| | (1.4170) | (2.2961) | (-2.2253) |
| BA MAJOR IN NATURAL SCIENCES | 0.0033 | 0.0044 | 0.0218 |
| | (0.4181) | (0.5209) | (0.8214) |
| BA MAJOR IN PERFORMING ARTS | 0.0369* | 0.0257 | 0.0998* |
| | (1.9689) | (1.3784) | (1.9995) |
| BA MAJOR IN SOCIAL SCIENCES | 0.0214** | 0.0215** | -0.0201 |
| | (3.6572) | (3.3951) | (-1.1050) |
| BA MAJOR IN A VOCATIONAL SUBJECT | 0.0140 | 0.0292 | -0.0119 |
| | (0.8305) | (1.8390) | (-0.1165) |
| HAS ADVANCED PROFESSIONAL TCHG CERTIFICA | 0.0099* | 0.0125** | -0.0134 |
| | (2.1232) | (2.6607) | (-0.6404) |
| HAS PROBATIONARY CERTIFICATE | -0.0241* | -0.0248* | 0.0022 |
| | (-2.5131) | (-2.3873) | (0.0860) |
| HAS TEMPORARY CERTIFICATE | -0.0085 | -0.0105 | 0.0065 |
| | (-0.9455) | (-1.0729) | (0.3020) |
| NO TCHING CERTIFICATE | -0.0192* | -0.0311** | -0.0027 |
| | (-2.1152) | (-2.7917) | (-0.2138) |

**Table B.2A— Parameter estimates for teacher salary regression equations, by sector—Continued**

| | Public/ Private Combined | Public Sector School Teacher | Private Sector School Teacher |
|---|---|---|---|
| HIGHEST DEGREE IS NONE | -0.0620** | 0.0140 | -0.1459** |
| | (-2.9667) | (0.7895) | (-3.5481) |
| HIGHEST DEGREE IS ASSOC ARTS | -0.0546 | 0.0528 | -0.2080* |
| | (-1.6317) | (1.8066) | (-2.4006) |
| HIGHEST DEGREE IS MASTERS | 0.1073** | 0.1071** | 0.0788** |
| | (26.1831) | (23.5183) | (6.0681) |
| HIGHEST DEGREE IS ED SEPC CERT | 0.1340** | 0.1300** | 0.1382** |
| | (19.2233) | (16.6918) | (3.5322) |
| HIGHEST DEGREE IS DOCTORATE | 0.1577** | 0.1617** | 0.1285** |
| | (8.2451) | (7.9040) | (2.6250) |
| TEACHER IS SECONDARY LEVEL | 0.0262** | 0.0243** | 0.0424* |
| | (3.7380) | (3.0987) | (2.0688) |
| LOG (CLSZINDX) | 0.0209** | 0.0122** | 0.0246 |
| | (4.9707) | (2.6318) | (1.5657) |
| CURRENTLY MASTER OR MENTOR TEACHER | 0.0151** | 0.0094 | 0.0632** |
| | (2.7789) | (1.7824) | (3.4937) |
| % TIME TEACHING OUT OF FIELD | 0.0001 | 0.0001 | 0.0003 |
| | (1.8632) | (1.0978) | (1.3860) |
| OUT-OF-FIELD VALUE NOT APPLICABLE | -0.0032 | -0.0064 | 0.0353 |
| | (-0.4977) | (-0.9744) | (1.1789) |
| % TCHG TIME W/ HIGH ACHVG STUDENTS | 0.0001* | 0.0001* | 0.0003** |
| | (2.5370) | (2.0084) | (2.6584) |
| % TCHG TIME W/ LOW ACHVG STUDENTS | 0.0000 | -0.0000 | -0.0002 |
| | (0.3750) | (-0.3140) | (-0.5022) |
| NONSCHL TIME SPENT ON SCH-RELATED ACTVS | 0.0013** | 0.0011** | 0.0021** |
| | (6.4025) | (5.4042) | (3.0006) |
| CONTRIBUTED SERVICE WORK IN THIS SCHOOL | -0.2988** | | -0.2152** |
| | (-8.0755) | | (-6.7415) |
| % STDS BOARD AT THIS SCH-PRV, SCH | 0.0004 | | 0.0004 |
| | (1.0638) | | (1.1696) |
| ASSIGNED HOMEWORK IN RECENT WEEK | 0.0121* | 0.0150** | -0.0061 |
| | (2.3424) | (2.8620) | (-0.3013) |

**Table B.2A— Parameter estimates for teacher salary regression equations, by sector—Continued**

| | Public/ Private Combined | Public Sector School Teacher | Private Sector School Teacher |
|---|---|---|---|
| INDEX-STUDENT SELF-ABUSIVE BHVR | 0.0019 | 0.0017 | -0.0082 |
| | (1.5689) | (1.4495) | (-1.2980) |
| INDEX-STUDENTS FAMILY PROBLEMS | 0.0047** | 0.0052** | -0.0024 |
| | (4.4729) | (5.4695) | (-0.4743) |
| INDEX-TEACHERS SUPPORT | 0.0057** | 0.0067** | 0.0033 |
| | (4.5677) | (4.5862) | (0.7148) |
| INDEX-TEACHERS CONTROL | 0.0036** | 0.0023 | 0.0128** |
| | (2.7950) | (1.5052) | (2.8548) |
| INDEX-TEACHERS INFLUENCE IN POLICY | 0.0032** | 0.0031** | 0.0101** |
| | (2.7768) | (2.7604) | (3.0779) |
| INDEX-TEACHERS SATISFACTION | -0.0031** | -0.0037** | 0.0077* |
| | (-3.5246) | (-4.1089) | (2.1068) |
| INDEX-VIOLENT STUDENT BEHAVIOR | -0.0063** | -0.0049** | -0.0036 |
| | (-4.4935) | (-3.3275) | (-0.4269) |
| % STUDENTS ARE: ASIAN/PAC ISL, SCH | 0.0024** | 0.0009 | 0.0017 |
| | (5.3000) | (1.3423) | (1.8605) |
| % STUDENTS ARE: BLACK/NONHISP, SCH | -0.0000 | 0.0002 | 0.0002 |
| | (-0.0852) | (1.2967) | (0.3771) |
| % STUDENTS ARE: HISPANIC, SCH | 0.0011** | 0.0007* | 0.0004 |
| | (6.7815) | (2.3631) | (0.8706) |
| % STUDENTS ARE: AM INDIAN/ALASKAN, SCH | 0.0002 | -0.0000 | 0.0001 |
| | (1.0818) | (-0.0056) | (0.0382) |
| RACE_ASN*PENRASNS | -0.0021** | -0.0018* | -0.0006 |
| | (-4.6504) | (-2.4286) | (-0.4052) |
| RACE_BLK*PENRBLKS | -0.0001 | -0.0006 | -0.0013 |
| | (-0.3158) | (-1.6342) | (-1.4254) |
| RACE_HIS*PENRHISS | -0.0002 | -0.0005 | -0.0014 |
| | (-0.5310) | (-0.8349) | (-1.3837) |
| RACE_NAT*PENRNATS | 0.0001 | 0.0001 | -0.0038 |
| | (0.1638) | (0.2225) | (-0.0362) |
| % STUDENTS ABSENT ON A RECENT DAY, SCH | -0.0000 | 0.0002 | -0.0021 |
| | (-0.0812) | (0.3784) | (-1.1823) |

**Table B.2A— Parameter estimates for teacher salary regression equations, by sector—Continued**

| | Public/ Private Combined | Public Sector School Teacher | Private Sector School Teacher |
|---|---|---|---|
| CATHOLIC-DIOCESAN | -0.4982** | | -0.0930** |
| | (-24.2452) | | (-3.6257) |
| CATHOLIC-PAROCHIAL | -0.5340** | | -0.0953** |
| | (-41.2658) | | (-4.7868) |
| CATHOLIC-PRIVATE | -0.2946** | | 0.0866* |
| | (-11.2871) | | (2.4393) |
| NONSECTARIAN-REGULAR | -0.2381** | | 0.1326** |
| | (-10.8450) | | (4.8312) |
| NONSECTARIAN-SPECIAL EMPHASIS | -0.3258** | | 0.0759 |
| | (-11.6954) | | (1.8442) |
| NONSECTARIAN-SPECIAL EDUCATION | -0.2456** | | -0.0309 |
| | (-8.8812) | | (-0.4217) |
| OTHER RELIGIOUS-AFFILIATED | -0.4005** | | |
| | (-22.3786) | | |
| OTHER RELIGIOUS-UNAFFILIATED | -0.5352** | | -0.1426** |
| | (-14.5303) | | (-4.0138) |
| OTHER RELIGIOUS-CONSERVATIVE CHRISTIAN | -0.5789** | | -0.1780** |
| | (-26.6415) | | (-7.2213) |
| SCHOOL IS ALL FEMALE | -0.0373 | | -0.0291 |
| | (-1.0036) | | (-0.8008) |
| SCHOOL IS ALL MALE | 0.0744 | | 0.0414 |
| | (1.5481) | | (0.8419) |
| SCHOOL IS SPECIAL EDUCATION | 0.0437** | 0.0262 | 0.3077** |
| | (2.7914) | (1.6890) | (4.2974) |
| SCHOOL IS VOCATIONAL/TECH | 0.0243 | 0.0110 | 0.2315 |
| | (1.6244) | (0.7276) | (1.0151) |
| SCHOOL IS ALTERNATIVE | 0.0667* | 0.0412 | 0.1511 |
| | (2.4157) | (1.7121) | (1.6923) |
| INDEX OF ADMISSION REQUIREMENTS | 0.0012 | -0.0031 | 0.0198* |
| | (0.2544) | (-0.6664) | (2.1703) |

**Table B.2A— Parameter estimates for teacher salary regression equations, by sector—Continued**

| | Public/ Private Combined | Public Sector School Teacher | Private Sector School Teacher |
|---|---|---|---|
| LOG OF STDT ENROLLMENT FOR THE SCHOOL | | | 0.0675**<br>(7.6575) |
| DIST ENROLLMENT 500 GE 501 AND LT 1000 | | 0.0577**<br>(4.8124) | |
| DIST ENROLLMENT GE 1001 AND LT 5000 | | 0.1032**<br>(9.8898) | |
| DIST ENROLLMENT GE 5001 AND LT 10,000 | | 0.1271**<br>(9.7670) | |
| DIST ENROLLMENT GE 10,001 AND LT 25,000 | | 0.1179**<br>(8.3882) | |
| DIST ENROLLMENT GE 25,001 AND LT 50,000 | | 0.1048**<br>(6.6457) | |
| DIST ENROLLMENT GE 50,001 AND LT 100,000 | | 0.0860**<br>(5.4543) | |
| DIST ENROLLMENT > 100,000 | | 0.1209**<br>(7.3044) | |
| % DIST K-12 STDS: ASIAN/PACFC ISL | | 0.0021*<br>(2.3782) | |
| % DIST K-12 STDS: BLACK NONHISPNC | | -0.0003<br>(-1.2761) | |
| % DIST K-12 STDS: HISPANIC | | 0.0005<br>(1.7646) | |
| % DIST K-12 STDS: AMIND/ALASKAN | | 0.0004<br>(0.9598) | |
| RACE_ASN*PENRASND | | -0.0007<br>(-0.6651) | |
| RACE_BLK*PENRBLKD | | 0.0008<br>(1.8060) | |
| RACE_HIS*PENRHISD | | 0.0006<br>(1.0113) | |
| RACE_NAT*PENRNATD | | 0.0001<br>(0.2002) | |

**Table B.2A— Parameter estimates for teacher salary regression equations, by sector—Continued**

| | Public/ Private Combined | Public Sector School Teacher | Private Sector School Teacher |
|---|---|---|---|
| % CHG IN DIST. ENR 89 TO 90, DIS | | 0.0009<br>(1.6295) | |
| % OF TOT ENR FOR LARGEST DIST ENR | -0.0006$^{**}$<br>(-10.3734) | -0.0008$^{**}$<br>(-9.2328) | |
| CLOSEST CENTRAL CITY IS 10-20 MILES | -0.0049<br>(-0.8483) | -0.0025<br>(-0.3453) | |
| CLOSEST CENTRAL CITY IS 20-40 MILES | -0.0034<br>(-0.5592) | 0.0026<br>(0.3989) | |
| CLOSEST CENTRAL CITY IS 40-80 MILES | 0.0079<br>(1.2701) | 0.0082<br>(1.1541) | |
| CLOSEST CENTRAL CITY IS 80-160 MILES | 0.0195<br>(1.4714) | 0.0164<br>(1.4179) | |
| CLOSEST CENTRAL CITY IS > 160 MILES | 0.0649$^{**}$<br>(3.9370) | 0.0613$^{**}$<br>(3.8054) | -0.2029<br>(-1.1353) |
| DISTRICT < 75 MILES OF 2 CENTRAL CITIES | -0.0032<br>(-0.6049) | -0.0051<br>(-1.0003) | |
| DISTRICT < 75 MILES OF 3 CENTRAL CITIES | 0.0199$^{**}$<br>(3.4265) | 0.0220$^{**}$<br>(3.5409) | |
| % CHANGE, COUNTY POPULATION 1980-90 | 0.0009$^{**}$<br>(6.1256) | 0.0009$^{**}$<br>(6.2575) | 0.0016$^{**}$<br>(3.0264) |
| LOG AVG VALUE FARM LAND/BLDG/ACRE, 87 | 0.0565$^{**}$<br>(14.6602) | 0.0566$^{**}$<br>(14.9341) | 0.0169<br>(1.4465) |
| NAT LOG COUNTY POPULATION DENSITY, 1990 | -0.0566$^{**}$<br>(-9.2090) | -0.0693$^{**}$<br>(-10.0267) | 0.0168<br>(1.7476) |
| SQR OF NAT LOG CNTY POP DENSITY, 1990 | 0.0048$^{**}$<br>(8.0772) | 0.0057$^{**}$<br>(8.8194) | |
| NAT LOG COUNTY POPULATION, 1990 | | | 0.0249$^{**}$<br>(3.6355) |
| LOG POP MSA/PMSA AREA OR NONMET COUNTY | -0.0447$^{*}$<br>(-2.2885) | -0.0640$^{**}$<br>(-2.6248) | |
| SQR OF LOG POP MSA/PMSA AREA/NONMET CO | 0.0027$^{**}$<br>(3.5754) | 0.0035$^{**}$<br>(3.6508) | |

**Table B.2A— Parameter estimates for teacher salary regression equations, by sector—Continued**

| | Public/ Private Combined | Public Sector School Teacher | Private Sector School Teacher |
|---|---|---|---|
| CIVILIAN LABOR FORCE UNEMPLOYMENT RATE,8 | -0.0047** | -0.0046** | -0.0133** |
| | (-4.3755) | (-3.7985) | (-2.5821) |
| MEAN TEMPERATURE (30 YRS NORMAL) | -0.0034** | -0.0035** | (-7.3978) |
| | (-8.1845) | | |
| AVG SNOW IN. (30 YRS NORMAL) | 0.0004* | 0.0006** | |
| | (2.3548) | (3.3637) | |
| # OF BANKS PER 100,000 POPULATION, 86 | -0.0033** | -0.0028** | 0.0037** |
| | (-12.4889) | (-9.2820) | (3.9084) |
| # VIOLENT CRIMES PER 100,000 POPULATION, | 0.0000** | 0.0000** | 0.0000 |
| | (3.8308) | (3.6571) | (0.8747) |
| Number of Cases | 47,928 | 40,484 | 4,993 |
| R-Squared | 0.6724 | 0.6266 | 0.5824 |
| Adj R-squared | 0.6715 | 0.6254 | 0.5730 |
| F-test | 810.7710 | 546.1310 | 61.8890 |
| (Prob>F) | 0.0001 | 0.0001 | 0.0001 |

SOURCE: U.S. Department of Education, National Center for Education Statistics (NCES), Schools and Staffing Survey: 1990-91; U.S. Department of Education, NCES, Common Core of Data (nonfiscal surveys): 1990-91; the Private Schools file: 1990-91; U.S. Department of Commerce, Economics and Statistics Administration, Bureau of the Census, County and City Data Book: 1990; National Climatic Data Center, The World Weather Disc: Climate Data for the Planet Earth.

**Table B.2B—Parameter estimates for teacher salary regression equations by sector, by school level, and by sex: United States, 1990-1991**

| | Public Sector School Teachers | | | | Private Sector School Teachers | | | |
|---|---|---|---|---|---|---|---|---|
| | Elementary | | Secondary | | Elementary | | Secondary | |
| | Male | Female | Male | Female | Male | Female | Male | Female |
| INTERCEPT | 9.0189$^{**}$ | 10.0571$^{**}$ | 9.9484$^{**}$ | 10.0147$^{**}$ | 9.8494$^{**}$ | 8.5774$^{**}$ | 7.5027$^{**}$ | 8.9820$^{**}$ |
| | (14.3901) | (43.9775) | (44.8303) | (46.5349) | (5.2753) | (35.4538) | (15.3157) | (27.4722) |
| TCHR IS ASIAN | -0.0845 | 0.0059 | 0.0346 | 0.0248 | 0.3392 | -0.0418 | -0.0711 | -0.0784 |
| | (-1.1019) | (0.2585) | (1.5299) | (0.9421) | (0.2199) | (-0.8473) | (-0.4572) | (-1.0125) |
| TCHR IS BLACK | -0.0136 | -0.0452 | -0.0112 | 0.0150 | 0.0370 | 0.0951 | 0.0585 | -0.0463 |
| | (-0.2789) | (-1.9197) | (-0.5588) | (0.8173) | (0.0013) | (1.4055) | (0.5063) | (-0.8967) |
| TCHR IS HISPANIC | 0.0631 | -0.0257 | 0.0205 | 0.0134 | -0.7203 | 0.0232 | 0.1434 | 0.0533 |
| | (0.6428) | (-1.0278) | (0.9414) | (0.5490) | (-0.3720) | (0.3175) | (1.2925) | (0.7316) |
| TCHR IS AMERICAN INDIAN/ALASKAN NATIVE | -0.0977 | -0.0414 | -0.0517 | -0.0448 | 0.0623 | 0.2467 | 0.2054 | -0.1656 |
| | (-1.2568) | (-1.7266) | (-0.7794) | (-1.2871) | (0.0157) | (1.3315) | (0.8089) | (-1.1051) |
| CURRENT MARITAL STATUS | 0.0025 | -0.0186$^{**}$ | 0.0132 | -0.0166$^{**}$ | 0.0003 | -0.0028 | 0.0386 | 0.0038 |
| | (0.1264) | (-3.4433) | (1.6901) | (-3.1755) | (0.0036) | (-0.1634) | (1.1966) | (0.1959) |
| MEMBER PROFESS TEACHER/ED ORGANIZATION | 0.0081 | 0.0337$^{**}$ | 0.0327$^{**}$ | 0.0350$^{**}$ | 0.0947 | 0.0597$^{**}$ | 0.0529 | 0.0071 |
| | (0.3258) | (4.2010) | (4.7992) | (5.0107) | (0.8227) | (3.4751) | (1.8306) | (0.3460) |
| TEACHES < 1/4 TIME | -0.2975 | -0.7879$^{**}$ | -0.3885$^{**}$ | -0.6242$^{**}$ | -1.8401$^{*}$ | -0.6476 | -0.6802$^{*}$ | -0.9280$^{**}$ |
| | (-1.2723) | (-6.1713) | (-3.3833) | (-6.6414) | (-2.3829) | (-1.9164) | (-2.5667) | (-4.7499) |
| TEACHES AT LEAST 1/4, NOT 1/2 | -0.3420$^{*}$ | -0.6578$^{**}$ | -0.2857$^{**}$ | -0.5023$^{**}$ | -0.3398 | -0.7164$^{**}$ | -0.7769$^{**}$ | -0.4793$^{**}$ |
| | (-2.4437) | (-11.1248) | (-4.2676) | (-9.5462) | (-0.9206) | (-6.9129) | (-6.5932) | (-6.0578) |
| TEACHES AT LEAST 1/2, NOT 3/4 | -0.2376 | -0.5290$^{**}$ | -0.1809$^{**}$ | -0.4074$^{**}$ | -0.6010 | -0.3927$^{**}$ | -0.3591$^{**}$ | -0.4088$^{**}$ |
| | (-1.5657) | (-18.5253) | (-5.7408) | (-17.6313) | (-0.2893) | (-9.8290) | (-3.4922) | (-7.6625) |
| TEACHES AT LEAST 3/4, NOT FULLTIME | -0.1354 | -0.4077$^{**}$ | -0.0929$^{**}$ | -0.2384$^{**}$ | -0.1573 | -0.2930$^{**}$ | -0.0231 | -0.2112$^{**}$ |
| | (-0.9857) | (-10.4566) | (-3.2030) | (-8.1060) | (-0.8892) | (-6.8713) | (-0.2861) | (-3.6533) |

**Table B.2B—Parameter estimates for teacher salary regression equations by sector, by school level, and by sex: United States, 1990-1991—Continued**

| | Public Sector School Teachers | | | | Private Sector School Teachers | | | |
|---|---|---|---|---|---|---|---|---|
| | Elementary | | Secondary | | Elementary | | Secondary | |
| | Male | Female | Male | Female | Male | Female | Male | Female |
| MAIN ASGNMNT ITINERATE TCHR | 0.2507 | 0.4736$^{**}$ | 0.1315$^{**}$ | 0.3290$^{**}$ | 0.0318 | 0.1752 | -0.1007 | 0.1239 |
| | (1.4523) | (11.1205) | (2.9376) | (8.2151) | (0.0349) | (0.6625) | (-0.3679) | (0.5512) |
| MAIN ASGNMNT LONG TERM SUBST. TCHR | -0.2236 | -0.1293$^{**}$ | -0.1892$^{*}$ | -0.1896$^{**}$ | | 0.3715 | -0.0303 | -0.2014 |
| | (-1.1827) | (-2.9437) | (-2.1373) | (-2.7561) | | (1.5063) | (-0.1091) | (-0.9052) |
| AGE AS OF 1991 | 0.0108$^{*}$ | 0.0040 | 0.0020 | -0.0034 | -0.1000 | -0.0005 | 0.0417$^{*}$ | -0.0194$^{*}$ |
| | (2.0998) | (1.5874) | (0.6948) | (-1.4597) | (-1.6163) | (-0.0882) | (2.5342) | (-2.5041) |
| AGE AS OF 1991 - SQUARED | -0.0001$^{*}$ | $-3.2 \times 10^{-5}$ | $-3.1 \times 10^{-5}$ | $4.4 \times 10^{-5}$ | 0.0011 | $-1.5 \times 10^{-7}$ | -0.0005$^{**}$ | 0.0002$^{*}$ |
| | (-2.1649) | (-1.1707) | (-0.9922) | (1.6157) | (1.3850) | (-0.0025) | (-2.8642) | (2.3582) |
| NUM OF BREAKS-IN SERVICE OF 1 YR OR MORE | -0.0739$^{**}$ | -0.0262$^{**}$ | -0.0346$^{**}$ | -0.0262$^{**}$ | -0.0020 | 0.0032 | -0.0234 | 0.0179 |
| | (-2.7571) | (-6.6979) | (-7.8645) | (-7.4208) | (-0.0173) | (0.3407) | (-0.9759) | (1.1661) |
| YRS SINCE BEGAN TCHNG IN THIS SCHOOL | 0.0004 | 0.0084$^{**}$ | 0.0047$^{**}$ | 0.0112$^{**}$ | 0.0013 | 0.0095$^{*}$ | 0.0162$^{**}$ | 0.0144$^{**}$ |
| | (0.0889) | (6.2316) | (2.9860) | (7.9315) | (0.0657) | (2.2311) | (2.8805) | (3.9190) |
| YRS SINCE BEGAN TCHNG IN THIS SCHOOL-SQD | 0.0001 | -0.0001$^{*}$ | -0.0001 | -0.0002$^{**}$ | 0.0002 | -0.0001 | -0.0003 | -0.0001 |
| | (0.4842) | (-2.5196) | (-1.7427) | (-4.5676) | (0.3245) | (-0.4056) | (-1.7738) | (-1.0733) |
| YRS SINCE BEGAN FIRST TCHNG POSITION | 0.0303$^{**}$ | 0.0207$^{**}$ | 0.0258$^{**}$ | 0.0202$^{**}$ | 0.0600$^{*}$ | 0.0158$^{**}$ | 0.0054 | 0.0160$^{**}$ |
| | (4.4559) | (12.9623) | (15.9620) | (15.2467) | (2.5023) | (4.5973) | (0.6578) | (5.0455) |
| YRS SINCE BEGAN 1ST TCHNG POSITION-SQD | -0.0006$^{**}$ | -0.0003$^{**}$ | -0.0004$^{**}$ | -0.0003$^{**}$ | -0.0014 | -0.0003$^{**}$ | 0.0002 | -0.0004$^{**}$ |
| | (-2.7345) | (-7.5274) | (-10.0739) | (-7.9097) | (-1.9450) | (-3.8212) | (0.8454) | (-4.4558) |

**Table B.2B—Parameter estimates for teacher salary regression equations by sector, by school level, and by sex: United States, 1990-1991—Continued**

| | Public Sector School Teachers | | | | Private Sector School Teachers | | | |
|---|---|---|---|---|---|---|---|---|
| | Elementary | | Secondary | | Elementary | | Secondary | |
| | Male | Female | Male | Female | Male | Female | Male | Female |
| BA MAJOR IN EDUCATION-BILINGUAL | -0.2272 | -0.0015 | 0.0186 | -0.0288 | | -0.2091 | 0.0582 | -0.2039 |
| | (-1.8317) | (-0.0594) | (0.2991) | (-0.7334) | | (-1.3992) | (0.5262) | (-1.3207) |
| BA MAJOR IN EDUCATION-EARLY CHILDHD | 0.0128 | 0.0140 | -0.0471 | 0.0003 | 0.0215 | 0.0329 | | 0.5058 |
| | (0.1852) | (1.3760) | (-1.1106) | (0.0079) | (0.0615) | (1.1737) | | (1.6143) |
| BA MAJOR IN EDUCATION-GENERAL SECONDARY | 0.0329 | -0.0226 | -0.0016 | 0.0103 | 0.1042 | -0.0001 | -0.0057 | -0.1112 |
| | (0.6210) | (-0.7182) | (-0.1385) | (0.7097) | (0.4350) | (-0.0010) | (-0.0735) | (-1.6823) |
| BA MAJOR IN EDUCATION-SPEC EDUC | -0.0270 | 0.0102 | -0.0171 | 0.0346* | 0.4624 | 0.0007 | -0.0621 | 0.1143* |
| | (-0.7055) | (0.8147) | (-0.7610) | (2.3909) | (0.0266) | (0.0147) | (-0.4080) | (2.0479) |
| BA MAJOR IN ART EDUC | -0.0651 | 0.0195 | -0.0425 | 0.0183 | -0.0561 | 0.1297 | 0.0042 | -0.0980 |
| | (-0.7716) | (0.4671) | (-1.7963) | (1.1687) | (-0.2181) | (1.5774) | (0.0291) | (-1.3422) |
| BA MAJOR IN BUSINESS EDUC | 0.0905 | 0.0178 | 0.0087 | 0.0172 | -0.0318 | 0.0008 | -0.1243 | 0.0547 |
| | (1.0457) | (0.6712) | (0.4799) | (1.4421) | (-0.0812) | (0.0118) | (-0.7016) | (0.6130) |
| BA MAJOR IN ENGLISH EDUC | -0.0546 | 0.0017 | -0.0131 | 0.0050 | 0.3289 | -0.0090 | -0.0390 | 0.0249 |
| | (-0.7739) | (0.0643) | (-0.8949) | (0.4790) | (0.5672) | (-0.1615) | (-0.6019) | (0.5531) |
| BA MAJOR IN FOREIGN LANG EDUC | 0.0155 | -0.0879 | -0.0346 | 0.0013 | -0.0692 | -0.0625 | 0.2233 | 0.0471 |
| | (0.1085) | (-1.0742) | (-1.2884) | (0.0641) | (-0.1967) | (-0.5326) | (0.8228) | (0.7883) |
| BA MAJOR IN MATH EDUC | 0.0717 | 0.0179 | -0.0397* | 0.0259* | 0.1695 | -0.0750 | 0.0060 | 0.0356 |
| | (0.6780) | (0.2558) | (-2.2454) | (2.3541) | (0.8007) | (-0.4781) | (0.1009) | (0.7434) |
| BA MAJOR IN MISC EDUC | -0.1224 | -0.0200 | 0.0472 | 0.0270 | 0.1296 | -0.0237 | 0.1191 | -0.2425* |
| | (-1.3767) | (-0.6481) | (1.2079) | (0.9113) | (0.3368) | (-0.2478) | (0.5773) | (-2.1503) |
| BA MAJOR IN MUSIC EDUC | -0.0698 | 0.0271 | 0.0163 | 0.0140 | 0.2646 | 0.1223 | 0.0114 | -0.0370 |
| | (-1.1742) | (0.6060) | (1.0719) | (0.6079) | (0.3602) | (1.4939) | (0.1106) | (-0.4683) |
| BA MAJOR IN NATURAL SCIENCE EDUC | 0.0802 | -0.1127 | -0.0153 | 0.0117 | 0.0792 | 0.2956** | -0.0703 | 0.0225 |
| | (0.6782) | (-1.8884) | (-1.0063) | (0.7444) | (0.2530) | (4.1796) | (-0.8641) | (0.1533) |
| BA MAJOR IN PHYSICAL EDUCATION | 0.0488 | 0.0530* | 0.0295** | 0.0443** | 0.1950 | -0.1440 | -0.0006 | 0.0089 |
| | (1.2173) | (2.5517) | (3.8881) | (4.4427) | (0.6219) | (-1.4562) | (-0.0106) | (0.1878) |
| BA MAJOR IN SOCIAL SCI EDUC | 0.3961** | -0.0313 | 0.0235 | 0.0075 | | -0.1671 | | -0.0549 |
| | (3.4080) | (-1.0955) | (0.5730) | (0.5597) | | (-1.9117) | | (-0.4940) |
| BA MAJOR IN VOCATIONAL EDUC | 0.1444 | 0.0905 | 0.0025 | 0.0783 | | 0.3115 | 0.1823 | |
| | (1.5763) | (1.5056) | (0.2406) | (1.6001) | | (0.7599) | (1.4651) | |
| BA MAJOR IN ART | -0.2551 | 0.0546 | -0.0610 | 0.0106 | 0.3526 | 0.0245 | -0.1108 | 0.0085 |
| | (-0.7626) | (1.4634) | (-1.8274) | (0.6399) | (0.8030) | (0.3876) | (-1.6022) | (0.1074) |
| BA MAJOR IN BUSINESS | -0.0010 | 0.0316 | 0.0127 | 0.0539 | | -0.0266 | 0.1233 | -0.0024 |
| | (-0.0219) | (0.7339) | (0.5111) | (1.9349) | | (-0.2964) | (1.5331) | (-0.0119) |
| BA MAJOR IN ENGLISH | -0.0134 | 0.0145 | -0.0146 | 0.0241 | -0.0335 | -0.0606 | 0.0770 | -0.0125 |
| | (-0.2687) | (0.5833) | (-0.8815) | (1.9509) | (-0.1398) | (-1.4065) | (1.2256) | (-0.3343) |

**Table B.2B—Parameter estimates for teacher salary regression equations by sector, by school level: and by sex: United States, 1990-1991—Continued**

| | Public Sector School Teachers | | | | Private Sector School Teachers | | | |
|---|---|---|---|---|---|---|---|---|
| | Elementary | | Secondary | | Elementary | | Secondary | |
| | Male | Female | Male | Female | Male | Female | Male | Female |
| BA MAJOR IN FOREIGN LANGUAGES | -0.0788 | 0.0506 | -0.0117 | -0.0126 | 0.4091 | -0.0072 | -0.0487 | 0.0244 |
| | (-0.9604) | (0.9154) | (-0.3729) | (-0.7832) | (0.5661) | (-0.0713) | (-0.6990) | (0.5255) |
| BA MAJOR IN HUMANITIES | -0.0527 | 0.0164 | -0.0151 | -0.0107 | 0.1558 | -0.0840 | 0.0475 | -0.1057 |
| | (-0.4241) | (0.3960) | (-0.2824) | (-0.1439) | (0.3178) | (-0.7828) | (0.4422) | (-0.6711) |
| BA MAJOR IN MATH | 0.0360 | 0.0986 | 0.0095 | 0.0316* | | 0.0203 | 0.0239 | 0.0664 |
| | (0.6520) | (1.7094) | (0.6628) | (2.0631) | | (0.1604) | (0.4525) | (1.7424) |
| BA MAJOR IN MISCELLANEOUS SUBJECTS | 0.1073 | 0.0798** | 0.0913 | 0.1229 | 0.2325 | 0.1031 | 0.0756 | 0.1938 |
| | (0.9136) | (2.9097) | (1.4677) | (1.8911) | (0.6183) | (0.5805) | (0.4586) | (1.2968) |
| BA MAJOR IN MUSIC | 0.1205 | 0.0328 | -0.0207 | 0.0538* | 0.4915 | -0.1885 | -0.1428 | -0.0446 |
| | (1.1453) | (0.5747) | (-0.7903) | (2.1649) | (0.5201) | (-1.9347) | (-1.3768) | (-0.4484) |
| BA MAJOR IN NATURAL SCIENCES | -0.0861 | -0.0128 | -0.0004 | 0.0239* | 0.2635 | 0.1103 | -0.0244 | 0.0063 |
| | (-1.1286) | (-0.3780) | (-0.0462) | (2.2698) | (0.6276) | (1.5126) | (-0.4928) | (0.1678) |
| BA MAJOR IN PERFORMING ARTS | -0.0657 | 0.0349 | -0.0182 | 0.0479 | -0.0842 | 0.1060 | 0.0465 | 0.1036 |
| | (-0.8310) | (0.8498) | (-0.5215) | (1.8280) | (-0.2155) | (0.9214) | (0.3789) | (0.8053) |
| BA MAJOR IN SOCIAL SCIENCES | 0.0275 | 0.0332** | 0.0048 | 0.0293* | -0.0219 | -0.0076 | -0.0347 | -0.0293 |
| | (1.0023) | (2.7584) | (0.3772) | (2.4613) | (-0.1645) | (-0.2833) | (-0.7856) | (-0.7654) |
| BA MAJOR IN A VOCATIONAL SUBJECT | 0.0568 | 0.0308 | 0.0180 | 0.0230 | 0.1586 | 0.0551 | -0.1371 | 0.1229 |
| | (0.3688) | (0.5793) | (0.6798) | (0.8794) | (0.4270) | (0.1279) | (-0.7751) | (0.3979) |
| HAS ADVANCED PROFESSIONAL TCHG CERTIFICA | 0.0127 | 0.0186** | -0.0090 | 0.0218** | -0.3499 | -0.0154 | -0.0443 | 0.0270 |
| | (0.4796) | (2.6206) | (-1.3953) | (3.2271) | (-0.6537) | (-0.4252) | (-0.8018) | (0.7721) |
| HAS PROBATIONARY CERTIFICATE | -0.0285 | -0.0287 | -0.0286 | -0.0096 | 0.2383 | -0.0626 | 0.0233 | 0.0212 |
| | (-0.6494) | (-1.6640) | (-1.5181) | (-0.6836) | (1.1349) | (-1.5789) | (0.3259) | (0.3884) |
| HAS TEMPORARY CERTIFICATE | -0.0418 | -0.0213 | -0.0101 | 0.0125 | -0.1713 | 0.0066 | 0.0303 | 0.0210 |
| | (-0.9728) | (-1.3732) | (-0.5535) | (0.7574) | (-0.7310) | (0.1895) | (0.5358) | (0.5017) |
| NO TCHING CERTIFICATE | -0.0541 | 0.0037 | -0.0351 | -0.0420* | -0.0669 | 0.0105 | -0.0114 | 0.0075 |
| | (-1.3017) | (0.1951) | (-1.4855) | (-2.4386) | (-0.7057) | (0.4830) | (-0.3986) | (0.3658) |

**Table B.2B—Parameter estimates for teacher salary regression equations by sector, by school level, and by sex: United States, 1990-1991—Continued**

| | Public Sector School Teachers | | | | Private Sector School Teachers | | | |
|---|---|---|---|---|---|---|---|---|
| | Elementary | | Secondary | | Elementary | | Secondary | |
| | Male | Female | Male | Female | Male | Female | Male | Female |
| HIGHEST DEGREE IS NONE | -0.3313 | -0.2106 | 0.0359 | 0.0318 | -0.0205 | -0.1774** | 0.1376 | -0.3420** |
| | (-1.7504) | (-1.7340) | (1.6884) | (0.6270) | (-0.0586) | (-3.4785) | (0.8776) | (-3.3233) |
| HIGHEST DEGREE IS ASSOC ARTS | 0.1838 | -0.0326 | 0.0641* | 0.0160 | 0.2823 | -0.2687* | -0.0509 | -0.1842 |
| | (1.0736) | (-0.1065) | (2.3796) | (0.2374) | (0.2222) | (-2.2420) | (-0.1990) | (-1.2716) |
| HIGHEST DEGREE IS MASTERS | 0.1066** | 0.1028** | 0.1011** | 0.1203** | 0.1715 | 0.0861** | 0.0646* | 0.0560* |
| | (5.4154) | (14.9134) | (17.4915) | (21.3202) | (1.6069) | (3.7981) | (2.4250) | (2.5498) |
| HIGHEST DEGREE IS ED SEPC CERT | 0.1196* | 0.1175** | 0.1335** | 0.1479** | -0.0269 | 0.0877 | 0.2248** | 0.1511* |
| | (2.4872) | (8.3944) | (10.7103) | (12.5207) | (-0.1011) | (1.7302) | (3.4614) | (2.1246) |
| HIGHEST DEGREE IS DOCTORATE | 0.2022** | 0.2036** | 0.1062** | 0.1795** | | 0.1170 | 0.0647 | 0.2022* |
| | (2.7549) | (3.5883) | (4.1990) | (4.6937) | | (0.5851) | (0.7725) | (2.5529) |
| LOG (CLSZINDX) | -0.0052 | 0.0211* | 0.0085 | 0.0066 | 0.0880 | 0.0599** | 0.0300 | -0.0390 |
| | (-0.2053) | (2.4936) | (1.2878) | (1.2503) | (0.8068) | (2.5812) | (0.7242) | (-1.7956) |
| CURRENTLY MASTER OR MENTOR TEACHER | 0.0153 | 0.0233* | -0.0130 | 0.0063 | -0.0481 | 0.0742* | 0.0605 | 0.0386 |
| | (0.4848) | (2.5514) | (-1.4191) | (0.8409) | (-0.1955) | (2.2049) | (1.3840) | (1.2594) |
| % TIME TEACHING OUT OF FIELD | | | 0.0000 | 0.0002* | | | 0.0005 | 0.0006 |
| | | | (0.5212) | (2.3592) | | | (1.2127) | (1.7799) |
| OUT-OF-FIELD VALUE NOT APPLICABLE | | | -0.0102 | -0.0045 | | | -0.0193 | 0.0615 |
| | | | (-0.6697) | (-0.3979) | | | (-0.3322) | (1.0532) |
| % TCHG TIME W/ HIGH ACHVG STUDENTS | 0.0002 | 0.0002 | 0.0000 | 0.0000 | -0.0001 | 0.0001 | 0.0005 | 0.0004 |
| | (0.4197) | (1.8336) | (0.3059) | (0.4168) | (-0.0979) | (0.6671) | (1.4020) | (1.3147) |
| % TCHG TIME W/ LOW ACHVG STUDENTS | -0.0004 | 0.0001 | -0.0000 | -0.0002 | 0.0005 | 0.0002 | -0.0001 | -0.0007 |
| | (-1.8130) | (1.4775) | (-0.1949) | (-1.6605) | (0.0064) | (0.2497) | (-0.1689) | (-1.4426) |
| NONSCHL TIME SPENT ON SCH-RELATED ACTVS | 0.0012 | 0.0007 | 0.0014** | 0.0006* | 0.0022 | -0.0002 | 0.0014 | 0.0033 |
| | (1.2139) | (1.8290) | (4.7076) | (2.2128) | (0.4778) | (-0.1843) | (1.2486) | (1.7947) |
| CONTRIBUTED SERVICE WORK IN THIS SCHOOL | | | | | 0.0431 | -0.2096** | -0.1746* | -0.2954** |
| | | | | | (0.3733) | (-5.8145) | (-2.5232) | (-4.3016) |
| % STDS BOARD AT THIS SCH-PRV. SCH | | | | | -0.0011 | 0.0001 | 0.0007 | 0.0003 |
| | | | | | (-0.0049) | (0.1946) | (1.2085) | (0.6464) |
| ASSIGNED HOMEWORK IN RECENT WEEK | -0.0208 | 0.0177** | -0.0043 | 0.0079 | -0.0191 | 0.0119 | 0.2007* | -0:1130 |
| | (-1.0555) | (2.6132) | (-0.2656) | (0.5481) | (-0.1629) | (0.6853) | (2.1022) | (-1.6439) |

**Table B.2B—Parameter estimates for teacher salary regression equations by sector, by school level, and by sex: United States, 1990-1991—Continued**

| | Public Sector School Teachers | | | | Private Sector School Teachers | | | |
|---|---|---|---|---|---|---|---|---|
| | Elementary | | Secondary | | Elementary | | Secondary | |
| | Male | Female | Male | Female | Male | Female | Male | Female |
| INDEX-STUDENT SELF-ABUSIVE BHVR | 0.0101 | 0.0081** | -0.0028 | -0.0014 | 0.0195 | 0.0260 | -0.0068 | -0.0287** |
| | (0.9620) | (2.9326) | (-1.4475) | (-0.6874) | (0.1999) | (1.6524) | (-0.5071) | (-2.7423) |
| INDEX-STUDENTS FAMILY PROBLEMS | 0.0081 | 0.0058** | 0.0049* | 0.0071** | -0.0074 | 0.0108 | -0.0076 | -0.0058 |
| | (1.5342) | (3.7614) | (2.5451) | (3.2168) | (-0.1481) | (1.4581) | (-0.5536) | (-0.6482) |
| INDEX-TEACHERS SUPPORT | -0.0088 | 0.0051* | 0.0116** | 0.0081** | -0.0449 | 0.0028 | 0.0075 | 0.0063 |
| | (-1.4313) | (2.4035) | (4.4914) | (3.8843) | (-1.0197) | (0.4112) | (0.7340) | (0.6550) |
| INDEX-TEACHERS CONTROL | 0.0075 | 0.0017 | -0.0005 | 0.0042 | 0.0487 | 0.0064 | 0.0225 | 0.0113 |
| | (1.1544) | (0.7723) | (-0.2433) | (1.7515) | (1.1671) | (0.9301) | (1.6812) | (0.8535) |
| INDEX-TEACHERS INFLUENCE IN POLICY | -0.0030 | 0.0023 | 0.0027 | 0.0069** | -0.0594* | 0.0081 | 0.0080 | 0.0131 |
| | (-0.5210) | (1.4820) | (1.7506) | (3.5793) | (-2.3064) | (1.6228) | (0.9083) | (1.8976) |
| INDEX-TEACHERS SATISFACTION | -0.0062 | -0.0009 | -0.0090** | -0.0025 | 0.0062 | 0.0143** | -0.0003 | -0.0047 |
| | (-1.2801) | (-0.5015) | (-5.6427) | (-1.8074) | (0.1952) | (2.7516) | (-0.0276) | (-0.6950) |
| INDEX-VIOLENT STUDENT BEHAVIOR | -0.0148 | -0.0094** | 0.0009 | -0.0024 | -0.0037 | -0.0352* | 0.0072 | 0.0097 |
| | (-1.7952) | (-2.9798) | (0.3863) | (-0.7796) | (-0.0512) | (-2.4886) | (0.3455) | (0.7235) |
| % STUDENTS ARE: ASIAN/PAC ISL, SCH | -0.0011 | 0.0013 | -0.0002 | 0.0011 | 0.0035 | 0.0013 | -0.0001 | 0.0027 |
| | (-0.3090) | (1.4901) | (-0.2494) | (0.8931) | (0.5520) | (1.0990) | (-0.0430) | (1.7726) |
| % STUDENTS ARE: BLACK/NONHISP, SCH | -0.0003 | 0.0005* | -0.0004 | 0.0003 | -0.0011 | -0.0001 | 0.0003 | 0.0001 |
| | (-0.5911) | (2.1723) | (-0.9292) | (0.8637) | (-0.3324) | (-0.1591) | (0.2152) | (0.2001) |
| % STUDENTS ARE: HISPANIC, SCH | 0.0000 | 0.0010** | 0.0000 | 0.0011* | -0.0045 | 0.0010 | -0.0010 | -0.0001 |
| | (0.0045) | (2.6705) | (0.0768) | (2.1497) | (-0.8293) | (1.4023) | (-0.7692) | (-0.1386) |
| % STUDENTS ARE: AM INDIAN/ALASKAN, SCH | 0.0002 | 0.0002 | 0.0000 | 0.0000 | 0.0071 | 0.0001 | -0.0018 | 0.0041 |
| | (0.2261) | (0.2672) | (0.0192) | (0.0151) | (0.2054) | (0.0645) | (-0.9767) | (0.4166) |
| RACE_ASN*PENRASNS | -0.0007 | -0.0017 | -0.0011 | -0.0024 | -0.0076 | -0.0020 | -0.0002 | 0.0004 |
| | (-0.1538) | (-1.6730) | (-0.8189) | (-1.6022) | (-0.0172) | (-0.8851) | (-0.0207) | (0.1759) |
| RACE_BLK*PENRBLKS | -0.0012 | -0.0006 | -0.0002 | -0.0004 | -0.0030 | -0.0020 | -0.0021 | 0.0018 |
| | (-1.1543) | (-1.2227) | (-0.3168) | (-0.7435) | (-0.0099) | (-1.4511) | (-0.9571) | (1.2306) |
| RACE_HIS*PENRHISS | 0.0022 | -0.0009 | 0.0011 | -0.0005 | 0.0945 | -0.0025 | -0.0017 | -0.0003 |
| | (0.9848) | (-1.3651) | (0.9556) | (-0.4515) | (0.0842) | (-1.4450) | (-0.3932) | (-0.1894) |
| RACE_NAT*PENRNATS | 0.0048* | -0.0004 | 0.0003 | -0.0003 | -0.0084 | 0.0004 | -0.0055 | -0.0046 |
| | (2.1567) | (-0.4602) | (0.1410) | (-0.1907) | (-0.0015) | (0.0014) | (-0.0088) | (-1.2481) |
| % STUDENTS ABSENT ON A RECENT DAY, SCH | -0.0005 | 0.0003 | -0.0003 | 0.0006 | 0.0095 | -0.0034 | 0.0006 | -0.0011 |
| | (-0.2135) | (0.2827) | (-0.3715) | (0.7442) | (0.7427) | (-1.5982) | (0.2125) | (-0.3560) |

**Table B.2B—Parameter estimates for teacher salary regression equations by sector, by school level, and by sex: United States, 1990-1991—Continued**

| | Public Sector School Teachers | | | | Private Sector School Teachers | | | |
|---|---|---|---|---|---|---|---|---|
| | Elementary | | Secondary | | Elementary | | Secondary | |
| | Male | Female | Male | Female | Male | Female | Male | Female |
| CATHOLIC-DIOCESAN | | | | | 0.0209 | -0.0895* | -0.0369 | -0.1102* |
| | | | | | (0.0468) | (-2.5052) | (-0.7235) | (-2.3647) |
| CATHOLIC-PAROCHIAL | | | | | -0.1649 | -0.1006** | -0.0280 | -0.0997* |
| | | | | | (-0.6969) | (-3.7234) | (-0.6798) | (-2.5110) |
| CATHOLIC-PRIVATE | | | | | 0.1417 | 0.0828 | 0.0906 | 0.0997* |
| | | | | | (0.3857) | (1.1801) | (1.3542) | (2.1006) |
| NONSECTARIAN-REGULAR | | | | | -0.0272 | 0.1488** | 0.1429** | 0.1431** |
| | | | | | (-0.1924) | (4.1879) | (2.8662) | (3.0596) |
| NONSECTARIAN-SPECIAL EMPHASIS | | | | | 0.1572 | 0.0621 | 0.1756* | -0.0055 |
| | | | | | (0.3620) | (1.0148) | (2.2636) | (-0.0938) |
| NONSECTARIAN-SPECIAL EDUCATION | | | | | 0.0233 | 0.1722 | -0.1490 | 0.0599 |
| | | | | | (0.0046) | (1.3659) | (-0.4797) | (0.3184) |
| OTHER RELIGIOUS-UNAFFILIATED | | | | | 0.1136 | -0.1557** | -0.0013 | -0.1720* |
| | | | | | (0.7499) | (-3.3370) | (-0.0241) | (-2.5196) |
| OTHER RELIGIOUS-CONSERVATIVE CHRISTIAN | | | | | -0.2352 | -0.1626** | -0.2035** | -0.1641** |
| | | | | | (-1.5482) | (-5.2607) | (-3.8446) | (-3.1507) |
| SCHOOL IS ALL FEMALE | | | | | | 0.0381 | -0.0109 | -0.0645 |
| | | | | | | (0.2586) | (-0.1600) | (-1.4208) |
| SCHOOL IS ALL MALE | | | | | 0.5614 | -0.0210 | 0.0039 | 0.0998 |
| | | | | | (0.0349) | (-0.1369) | (0.0590) | (1.3541) |
| SCHOOL IS SPECIAL EDUCATION | 0.0336 | 0.0261 | 0.0482 | 0.0160 | 0.2388 | 0.1959 | 0.4093 | 0.1527 |
| | (0.6006) | (1.0383) | (1.2801) | (0.7907) | (0.0223) | (1.4205) | (1.2860) | (0.7675) |
| SCHOOL IS VOCATIONAL/TECH | 0.0657 | 0.0936 | 0.0129 | -0.0128 | | | 0.2902 | 0.0757 |
| | (0.9501) | (0.8037) | (0.9238) | (-0.5274) | | | (1.3486) | (0.7457) |
| SCHOOL IS ALTERNATIVE | 0.3479* | -0.0629 | 0.0357 | 0.0566 | 0.0816 | 0.2040 | 0.0683 | 0.0662 |
| | (2.4584) | (-1.0516) | (1.4239) | (1.3809) | (0.0467) | (1.0327) | (0.6125) | (0.6354) |
| INDEX OF ADMISSION REQUIREMENTS | -0.0182 | -0.0105 | -0.0010 | 0.0069 | -0.0427 | 0.0159 | 0.0351 | 0.0476** |
| | (-0.8252) | (-1.5360) | (-0.1348) | (1.1044) | (-0.6467) | (1.1239) | (1.0867) | (3.1088) |
| LOG OF STDT ENROLLMENT FOR THE SCHOOL | | | | | -0.0052 | 0.0389** | 0.1264** | 0.0825** |
| | | | | | (-0.0910) | (2.7822) | (5.6108) | (5.4808) |

**Table B.2B—Parameter estimates for teacher salary regression equations by sector, by school level, and by sex: United States, 1990-1991—Continued**

| | Public Sector School Teachers | | | | Private Sector School Teachers | | | |
|---|---|---|---|---|---|---|---|---|
| | Elementary | | Secondary | | Elementary | | Secondary | |
| | Male | Female | Male | Female | Male | Female | Male | Female |
| DIST ENROLLMENT 500 GE 501 AND LT 1000 | 0.1083 | 0.0536** | 0.0582** | 0.0462* | | | | |
| | (1.3364) | (3.4628) | (4.2767) | (2.5486) | | | | |
| DIST ENROLLMENT GE 1001 AND LT 5000 | 0.1478 | 0.0839** | 0.1109** | 0.1072** | | | | |
| | (1.6421) | (5.2101) | (8.6570) | (6.7658) | | | | |
| DIST ENROLLMENT GE 5001 AND LT 10,000 | 0.1221 | 0.1074** | 0.1339** | 0.1425** | | | | |
| | (1.2505) | (6.4941) | (9.6209) | (7.0039) | | | | |
| DIST ENROLLMENT GE 10,001 AND LT 25,000 | 0.1188 | 0.1077** | 0.1279** | 0.1194** | | | | |
| | (1.0876) | (5.1577) | (8.1005) | (5.4930) | | | | |
| DIST ENROLLMENT GE 25,001 AND LT 50,000 | 0.1425 | 0.0884** | 0.1041** | 0.1138** | | | | |
| | (1.3887) | (3.7257) | (5.6455) | (4.4577) | | | | |
| DIST ENROLLMENT GE 50,001 AND LT 100,000 | 0.0997 | 0.0611** | 0.0904** | 0.1128** | | | | |
| | (0.9154) | (2.7862) | (4.8475) | (4.3862) | | | | |
| DIST ENROLLMENT > 100,000 | 0.1321 | 0.0941** | 0.1308** | 0.1330** | | | | |
| | (1.1261) | (3.5117) | (5.5465) | (4.5346) | | | | |
| % DIST K-12 STDS: ASIAN/PACFC ISL | 0.0053 | 0.0022* | 0.0026 | 0.0010 | | | | |
| | (1.7605) | (2.0661) | (1.7084) | (0.6579) | | | | |
| % DIST K-12 STDS: BLACK NONHISPNC | 0.0002 | -0.0006* | 0.0001 | -0.0001 | | | | |
| | (0.2487) | (-2.0277) | (0.1845) | (-0.2182) | | | | |
| % DIST K-12 STDS: HISPANIC | 0.0017 | 0.0004 | 0.0006 | 0.0004 | | | | |
| | (1.5137) | (0.8561) | (1.0843) | (0.7272) | | | | |
| % DIST K-12 STDS: AMIND/ALASKAN | 0.0006 | 0.0001 | 0.0008 | 0.0003 | | | | |
| | (0.6064) | (0.1664) | (1.9480) | (0.3888) | | | | |
| RACE_ASN*PENRASND | -0.0012 | -0.0007 | -0.0019 | 0.0000 | | | | |
| | (-0.2930) | (-0.5704) | (-1.0537) | (0.0175) | | | | |
| RACE_BLK*PENRBLKD | 0.0013 | 0.0012 | 0.0002 | -0.0000 | | | | |
| | (1.1629) | (1.4640) | (0.2578) | (-0.0738) | | | | |
| RACE_HIS*PENRHISD | -0.0025 | 0.0016* | -0.0018 | -0.0000 | | | | |
| | (-1.0192) | (2.3219) | (-1.6888) | (-0.0014) | | | | |
| RACE_NAT*PENRNATD | -0.0048 | 0.0006 | 0.0006 | 0.0007 | | | | |
| | (-1.9466) | (0.7643) | (0.2332) | (0.4649) | | | | |
| % CHG IN DIST. ENR 89 TO 90, DIS | 0.0036 | 0.0009 | 0.0003 | 0.0015 | | | | |
| | (1.8124) | (0.9108) | (0.3992) | (1.4994) | | | | |
| % OF TOT ENR FOR LARGEST DIST ENR | -0.0006 | -0.0007** | -0.0009** | -0.0009** | | | | |
| | (-1.8309) | (-5.2835) | (-6.2671) | (-5.3992) | | | | |

**Table B.2B—Parameter estimates for teacher salary regression equations by sector, by school level, and by sex: United States, 1990-1991—Continued**

| | Public Sector School Teachers | | | | Private Sector School Teachers | | | |
|---|---|---|---|---|---|---|---|---|
| | Elementary | | Secondary | | Elementary | | Secondary | |
| | Male | Female | Male | Female | Male | Female | Male | Female |
| CLOSEST CENTRAL CITY IS 10-20 MILES | 0.0157 | -0.0078 | -0.0050 | 0.0019 | | | | |
| | (0.5912) | (-0.6837) | (-0.4827) | (0.1782) | | | | |
| CLOSEST CENTRAL CITY IS 20-40 MILES | 0.0197 | -0.0039 | 0.0158 | 0.0023 | | | | |
| | (0.7322) | (-0.3318) | (1.3357) | (0.2505) | | | | |
| CLOSEST CENTRAL CITY IS 40-80 MILES | 0.0097 | 0.0027 | 0.0227 | 0.0027 | | | | |
| | (0.3733) | (0.2565) | (1.7659) | (0.2121) | | | | |
| CLOSEST CENTRAL CITY IS 80-160 MILES | 0.0171 | 0.0099 | 0.0271 | 0.0043 | | | | |
| | (0.3207) | (0.5960) | (1.2177) | (0.2513) | | | | |
| CLOSEST CENTRAL CITY IS > 160 MILES | 0.0363 | 0.0737** | 0.0534* | 0.0461 | | -0.5678 | | 0.0390 |
| | (0.5720) | (2.7731) | (2.0369) | (1.7146) | | (-1.2475) | | (0.7010) |
| DISTRICT < 75 MILES OF 2 CENTRAL CITIES | 0.0107 | -0.0051 | -0.0060 | -0.0122 | | | | |
| | (0.3030) | (-0.6115) | (-0.8027) | (-1.4846) | | | | |
| DISTRICT < 75 MILES OF 3 CENTRAL CITIES | 0.0281 | 0.0258** | 0.0152 | 0.0120 | | | | |
| | (0.8226) | (2.6387) | (1.7882) | (1.3217) | | | | |
| % CHANGE, COUNTY POPULATION 1980-90 | 0.0002 | 0.0008** | 0.0011** | 0.0010** | 0.0020 | 0.0009 | 0.0027* | 0.0027** |
| | (0.2110) | (4.1254) | (4.5050) | (3.1588) | (0.5744) | (1.0100) | (2.2932) | (3.0009) |
| LOG AVG VALUE FARM LAND/BLDG/ACRE, 87 | 0.0697** | 0.0535** | 0.0476** | 0.0657** | 0.0610 | 0.0201 | 0.0215 | -0.0119 |
| | (3.4692) | (8.3909) | (7.7408) | (10.7907) | (0.5655) | (1.3546) | (0.7679) | (-0.5549) |
| NAT LOG COUNTY POPULATION DENSITY, 1990 | -0.0987** | -0.0682** | -0.0621** | -0.0708** | 0.1081 | 0.0231 | -0.0173 | 0.0281 |
| | (-3.2165) | (-7.1785) | (-5.1921) | (-7.4192) | (1.8551) | (1.6504) | (-0.9971) | (1.4884) |
| SQR OF NAT LOG CNTY POP DENSITY, 1990 | 0.0068* | 0.0055** | 0.0060** | 0.0055** | | | | |
| | (2.5318) | (7.2367) | (4.8951) | (5.4141) | | | | |
| NAT LOG COUNTY POPULATION, 1990 | | | | | 0.0325 | 0.0268 | 0.0232 | 0.0275 |
| | | | | | (0.4592) | (1.9057) | (1.3517) | (1.9176) |
| LOG POP MSA/PMSA AREA OR NONMET COUNTY | 0.0532 | -0.0878** | -0.0539 | -0.0766* | | | | |
| | (0.6038) | (-2.6873) | (-1.6041) | (-2.1470) | | | | |
| SQR OF LOG POP MSA/PMSA AREA/NONMET CO | -0.0006 | 0.0043** | 0.0031* | 0.0041** | | | | |
| | (-0.1625) | (3.3302) | (2.2818) | (2.8439) | | | | |

**Table B.2B—Parameter estimates for teacher salary regression equations by sector, by school level, and by sex: United States, 1990-1991—Continued**

| | Public Sector School Teachers | | | | Private Sector School Teachers | | | |
|---|---|---|---|---|---|---|---|---|
| | Elementary | | Secondary | | Elementary | | Secondary | |
| | Male | Female | Male | Female | Male | Female | Male | Female |
| CIVILIAN LABOR FORCE UNEMPLOYMENT RATE,8 | 0.0032 | -0.0050** | -0.0059** | -0.0048** | 0.0184 | -0.0099 | -0.0141 | -0.0147 |
| | (0.6840) | (-2.8906) | (-3.9642) | (-2.9628) | (0.5386) | (-1.8375) | (-1.6952) | (-1.4785) |
| MEAN TEMPERATURE (30 YRS NORMAL) | -0.0042* | -0.0034** | -0.0030** | -0.0040** | | | | |
| | (-2.2401) | (-5.9718) | (-4.3093) | (-6.7966) | | | | |
| AVG SNOW IN. (30 YRS NORMAL) | 0.0008 | 0.0008** | 0.0003 | 0.0006** | | | | |
| | (1.1500) | (3.0737) | (1.2281) | (2.6556) | | | | |
| # OF BANKS PER 100,000 POPULATION, 86 | -0.0021 | -0.0036** | -0.0023** | -0.0021** | 0.0121 | 0.0030** | 0.0011 | 0.0068* |
| | (-1.6899) | (-7.4801) | (-5.3824) | (-6.2139) | (1.7946) | (2.9314) | (0.6110) | (2.1120) |
| # VIOLENT CRIMES PER 100,000 POPULATION, | 0.0000 | 0.0000 | 0.0000* | 0.0000** | -0.0000 | -0.0000 | 0.0001* | 0.0000 |
| | (1.4854) | (1.5827) | (2.2654) | (3.0478) | (-0.0450) | (-0.6947) | (2.4850) | (0.0529) |
| Number of Cases | 1,562 | 12,685 | 12,330 | 13,907 | 261 | 2,300 | 1,068 | 1,413 |
| R-Squared | 0.6219 | 0.6281 | 0.6237 | 0.6351 | 0.8475 | 0.5426 | 0.6726 | 0.6319 |
| Adj R-squared | 0.5915 | 0.6246 | 0.6201 | 0.6320 | 0.7639 | 0.5216 | 0.6383 | 0.6029 |
| F-test | 20.4850 | 182.9550 | 171.5140 | 203.3840 | 10.1460 | 25.8140 | 19.6470 | 21.8150 |
| (Prob>F) | 0.0001 | 0.0001 | 0.0001 | 0.0001 | 0.0001 | 0.0001 | 0.0001 | 0.0001 |

SOURCE: U.S. Department of Education, National Center for Education Statistics (NCES), Schools and Staffing Survey: 1990-91; U.S. Department of Education, NCES, Common Core of Data (nonfiscal surveys): 1990-91; the Private Schools file: 1990-91; U.S. Department of Commerce, Economics and Statistics Administration, Bureau of the Census, County and City Data Book: 1990; National Climatic Data Center, The World Weather Disc: Climate Data for the Planet Earth.

**Table B.3— A comparison of the parameter estimates for the Hedonic Salary Regressions using alternative dependent variables**

| | Parameter Estimates from: | | | |
|---|---|---|---|---|
| | Original Equation (Table B.2) | Equation Using Log Academic Salary as Dependent Variable | Absolute Difference Between Parameters (1) - (2) | % Difference Between Parameters (3) ÷ (1) |
| Variables | (1) | (2) | (3) | (4) |
| INTERCEPT | 9.89971 | 9.88920 | 0.010518 | 0.11 |
| **(A) DISCRETIONARY FACTORS** | | | | |
| TCHR IS WHITE FEMALE | ***************** *Comparison Group* *************** | | | |
| TCHR IS ASIAN MALE | 0.02562 | 0.01857 | 0.007050 | 27.52 |
| TCHR IS BLACK MALE | 0.00899 | -0.00123 | 0.010222 | 113.70 |
| TCHR IS HISPANIC MALE | 0.05744 | 0.04233 | 0.015109 | 26.30 |
| TCHR IS AMER IND/ALSKN NATV MALE | -0.00513 | -0.03070 | 0.025566 | -498.49 |
| TCHR IS WHITE MALE | 0.05197 | 0.02718 | 0.024785 | 47.69 |
| TCHR IS ASIAN FEMALE | 0.02160 | 0.02054 | 0.001061 | 4.91 |
| TCHR IS BLACK FEMALE | -0.01950 | -0.02180 | 0.002301 | -11.80 |
| TCHR IS HISPANIC FEMALE | 0.00202 | 0.00347 | -0.001450 | -71.73 |
| TCHR IS AMER IND/ALSKN NATV FEMALE | -0.04076 | -0.03743 | -0.003329 | 8.17 |
| CURRENT MARITAL STATUS | -0.01238 | -0.01230 | -0.000081 | 0.65 |
| MEMBER PROFESS TEACHER/ED ORGANIZATION | 0.03334 | 0.03276 | 0.000578 | 1.74 |
| TEACHES FULLTIME | ***************** *Comparison Group* *************** | | | |
| TEACHES < 1/4 TIME | -0.61472 | -0.62063 | 0.005905 | -0.96 |
| TEACHES AT LEAST 1/4, NOT 1/2 | -0.51266 | -0.52766 | 0.015002 | -2.93 |
| TEACHES AT LEAST 1/2, NOT 3/4 | -0.42327 | -0.42788 | 0.004609 | -1.09 |
| TEACHES AT LEAST 3/4, NOT FULLTIME | -0.25493 | -0.26083 | 0.005899 | -2.31 |
| MAIN ASGNMNT ITINERATE TCHR | 0.34750 | 0.35214 | -0.004639 | -1.33 |
| MAIN ASGNMNT LONG TERM SUBST. TCHR | -0.16928 | -0.16495 | -0.004334 | 2.56 |
| AGE AS OF 1991 | 0.00285 | 0.00466 | -0.001810 | -63.42 |
| AGE AS OF 1991 - SQUARED | -0.00003 | -0.00004 | 0.000014 | -53.88 |
| NUM OF BREAKS IN SERVICE OF 1 YR OR MORE | -0.02906 | -0.02845 | -0.000609 | 2.10 |
| YRS SINCE BEGAN TCHNG IN THIS SCHOOL | 0.00873 | 0.00849 | 0.000243 | 2.78 |
| YRS SINCE BEGAN TCHNG IN THIS SCHOOL-SQD | -0.00016 | -0.00015 | -0.000011 | 6.94 |
| YRS SINCE BEGAN FIRST TCHNG POSITION | 0.02128 | 0.02127 | 0.000015 | 0.07 |
| YRS SINCE BEGAN 1ST TCHNG POSITION-SQD | -0.00031 | -0.00031 | 0.000002 | -0.79 |

**Table B.3— A comparison of the parameter estimates for the Hedonic Salary Regressions using alternative dependent variables—Continued**

| | Parameter Estimates from: | | | |
|---|---|---|---|---|
| Variables | Original Equation (Table B.2) (1) | Equation using Log Academic Salary as dependent variable (2) | Absolute Difference between Parameters (1) - (2) (3) | % Difference between Parameters (3) ÷ (1) (4) |
| BA MAJOR IN EDUCATION-GENERAL ELEMENTARY | ***************** *Comparison Group* *************** | | | |
| BA MAJOR IN EDUCATION-BILINGUAL | -0.01386 | -0.01032 | -0.003536 | 25.52 |
| BA MAJOR IN EDUCATION-EARLY CHILDHD | 0.01176 | 0.01189 | -0.000130 | -1.11 |
| BA MAJOR IN EDUCATION-GENERAL SECONDARY | 0.00430 | 0.00336 | 0.000942 | 21.89 |
| BA MAJOR IN EDUCATION-SPEC EDUC | 0.00832 | 0.00850 | -0.000176 | -2.12 |
| BA MAJOR IN ART EDUC | -0.00597 | 0.00336 | -0.009336 | 156.25 |
| BA MAJOR IN BUSINESS EDUC | 0.01619 | 0.01490 | 0.001293 | 7.98 |
| BA MAJOR IN ENGLISH EDUC | -0.00624 | -0.00196 | -0.004281 | 68.62 |
| BA MAJOR IN FOREIGN LANG EDUC | -0.01762 | -0.00519 | -0.012435 | 70.56 |
| BA MAJOR IN MATH EDUC | -0.00538 | 0.00057 | -0.005956 | 110.66 |
| BA MAJOR IN MISC EDUC | 0.00927 | 0.01737 | -0.008096 | -87.30 |
| BA MAJOR IN MUSIC EDUC | 0.01775 | -0.00186 | 0.019611 | 110.48 |
| BA MAJOR IN NATURAL SCIENCE EDUC | -0.01456 | -0.00547 | -0.009084 | 62.40 |
| BA MAJOR IN PHYSICAL EDUCATION | 0.04803 | 0.01294 | 0.035089 | 73.05 |
| BA MAJOR IN SOCIAL SCI EDUC | -0.00869 | -0.00615 | -0.002539 | 29.23 |
| BA MAJOR IN VOCATIONAL EDUC | 0.02982 | 0.03467 | -0.004852 | -16.27 |
| BA MAJOR IN ART | 0.00152 | 0.00908 | -0.007555 | -496.55 |
| BA MAJOR IN BUSINESS | 0.02878 | 0.02995 | -0.001170 | -4.07 |
| BA MAJOR IN ENGLISH | 0.00860 | 0.00996 | -0.001361 | -15.82 |
| BA MAJOR IN FOREIGN LANGUAGES | -0.00948 | -0.00135 | -0.008126 | 85.72 |
| BA MAJOR IN HUMANITIES | -0.02245 | -0.02351 | 0.001059 | -4.72 |
| BA MAJOR IN MATH | 0.02340 | 0.02959 | -0.006185 | -26.43 |
| BA MAJOR IN MISCELLANEOUS SUBJECTS | 0.09097 | 0.09061 | 0.000352 | 0.39 |
| BA MAJOR IN MUSIC | 0.03951 | 0.01830 | 0.021204 | 53.67 |
| BA MAJOR IN NATURAL SCIENCES | 0.00439 | 0.01112 | -0.006727 | -153.19 |
| BA MAJOR IN PERFORMING ARTS | 0.02567 | 0.01699 | 0.008678 | 33.81 |
| BA MAJOR IN SOCIAL SCIENCES | 0.02146 | 0.02159 | -0.000125 | -0.58 |
| BA MAJOR IN A VOCATIONAL SUBJECT | 0.02925 | 0.03140 | -0.002157 | -7.38 |
| HAS STANDARD TCHG CERTIFICATE | ***************** *Comparison Group* *************** | | | |
| HAS ADVANCED PROFESSIONAL TCHG CERTIFICATE | 0.01247 | 0.01225 | 0.000213 | 1.71 |
| HAS PROBATIONARY CERTIFICATE | -0.02480 | -0.01981 | -0.004995 | 20.14 |
| HAS TEMPORARY CERTIFICATE | -0.01046 | -0.00827 | -0.002198 | 21.01 |
| NO TCHING CERTIFICATE | -0.03110 | -0.03157 | 0.000469 | -1.51 |
| HIGHEST DEGREE IS BACHELORS | ***************** *Comparison Group* *************** | | | |
| HIGHEST DEGREE IS NONE | 0.01398 | 0.00676 | 0.007214 | 51.62 |
| HIGHEST DEGREE IS ASSOC ARTS | 0.05277 | 0.06362 | -0.010847 | -20.56 |
| HIGHEST DEGREE IS MASTERS | 0.10711 | 0.10823 | -0.001111 | -1.04 |
| HIGHEST DEGREE IS ED SEPC CERT | 0.12996 | 0.13284 | -0.002876 | -2.21 |
| HIGHEST DEGREE IS DOCTORATE | 0.16172 | 0.17002 | -0.008293 | -5.13 |
| TEACHER IS SECONDARY LEVEL | 0.02427 | 0.01251 | 0.011764 | 48.46 |
| LOG (INDEX OF CLASS SIZE) | 0.01220 | 0.01052 | 0.001671 | 13.71 |

**Table B.3— A comparison of the parameter estimates for the Hedonic Salary Regressions using alternative dependent variables—Continued**

| | Parameter Estimates from: | | | |
|---|---|---|---|---|
| | Original Equation (Table B.2) | Equation using Log Academic Salary as dependent variable | Absolute Difference between Parameters (1) - (2) | % Difference between Parameters (3) ÷ (1) |
| Variables | (1) | (2) | (3) | (4) |
| CURRENTLY MASTER OR MENTOR TEACHER | 0.00935 | 0.00344 | 0.005915 | 63.26 |
| % TIME TEACHING OUT OF FIELD | 0.00007 | 0.00011 | -0.000038 | -56.70 |
| OUT-OF-FIELD VALUE NOT APPLIC | -0.00636 | -0.00077 | -0.005585 | 87.86 |
| % TCHG TIME W/ HIGH ACHVG STDNTS | 0.00012 | 0.00013 | -0.000009 | -7.55 |
| % TCHG TIME W/ LOW ACHVG STDNTS | -0.00001 | -0.00001 | -0.000007 | 48.16 |
| NON-SCHL TIME SPENT ON SCH-RELATED ACTVS | 0.00107 | 0.00013 | 0.000947 | 88.08 |
| ASSIGNED HOMEWORK IN RECENT WK | 0.01502 | 0.01505 | -0.000031 | -0.21 |
| INDEX-STDNT SELF-ABUSIVE BHVIOR | 0.00172 | 0.00260 | -0.000872 | -50.62 |
| INDEX-STUDENTS FAMILY PROBLEMS | 0.00520 | 0.00535 | -0.000149 | -2.86 |
| INDEX-TEACHERS SUPPORT | 0.00670 | 0.00638 | 0.000322 | 4.81 |
| INDEX-TEACHERS CONTROL | 0.00226 | 0.00164 | 0.000619 | 27.44 |
| INDEX-TEACHERS INFLUENCE IN POLICY | 0.00311 | 0.00276 | 0.000350 | 11.26 |
| INDEX-TEACHERS SATISFACTION | -0.00368 | -0.00230 | -0.001380 | 37.52 |
| INDEX-VIOLENT STUDENT BEHAVIOR | -0.00489 | -0.00634 | 0.001448 | -29.61 |
| % STUDENTS ARE: ASIAN/PAC ISL, SCH | 0.00087 | 0.00092 | -0.000054 | -6.27 |
| % STUDENTS ARE: BLACK/NONHISP, SCH | 0.00022 | 0.00023 | -0.000010 | -4.61 |
| % STUDENTS ARE: HISPANIC, SCH | 0.00070 | 0.00066 | 0.000043 | 6.10 |
| % STUDENTS ARE: AM INDIAN/ ALASKAN, SCH | -0.00000 | -0.00008 | 0.000074 | -2908.25 |
| RACE_ASN*PENRASNS | -0.00179 | -0.00177 | -0.000016 | 0.87 |
| RACE_BLK*PENRBLKS | -0.00056 | -0.00065 | 0.000091 | -16.30 |
| RACE_HIS*PENRHISS | -0.00046 | -0.00053 | 0.000061 | -13.21 |
| RACE_NAT*PENRNATS | 0.00014 | 0.00010 | 0.000049 | 33.92 |
| % STUDENTS ABSENT ON A RECENT DAY, SCH | 0.00019 | 0.00026 | -0.000065 | -33.84 |
| SCHOOL IS SPECIAL EDUCATION | 0.02619 | 0.02544 | 0.000751 | 2.87 |
| SCHOOL IS VOCATIONAL/TECH | 0.01102 | 0.01757 | -0.006552 | -59.47 |
| SCHOOL IS ALTERNATIVE | 0.04120 | 0.04878 | -0.007585 | -18.41 |
| INDEX OF ADMISSION REQUIREMENTS | -0.00311 | -0.00270 | -0.000416 | 13.36 |
| **(B) COST FACTORS—DISTRICT LEVEL** | | | | |
| DIST ENROLLMENT: LESS THAN 501 | ***************** *Comparison Group* *************** | | | |
| DIST ENROLLMENT: 501-1,000 | 0.05770 | 0.05734 | 0.000360 | 0.62 |
| DIST ENROLLMENT: 1,001-5,000 | 0.10325 | 0.10428 | -0.001031 | -1.00 |
| DIST ENROLLMENT: 5,001-10,000 | 0.12710 | 0.12978 | -0.002680 | -2.11 |
| DIST ENROLLMENT: 10,001-25,000 | 0.11791 | 0.11950 | -0.001589 | -1.35 |
| DIST ENROLLMENT: 25,001-50,000 | 0.10478 | 0.10642 | -0.001643 | -1.57 |
| DIST ENROLLMENT: 50,001-100,000 | 0.08596 | 0.08858 | -0.002626 | -3.05 |
| DIST ENROLLMENT: ≥ 100,000 | 0.12087 | 0.11666 | 0.004205 | 3.48 |

**Table B.3— A comparison of the parameter estimates for the Hedonic Salary Regressions using alternative dependent variables—Continued**

| | Parameter Estimates from: | | | |
|---|---|---|---|---|
| | Original Equation (Table B.2) | Equation using Log Academic Salary as dependent variable | Absolute Difference between Parameters (1) - (2) | % Difference between Parameters (3) ÷ (1) |
| Variables | (1) | (2) | (3) | (4) |
| % DIST K-12 STDS: ASIAN/PACFC ISL | 0.00213 | 0.00225 | -0.000120 | -5.62 |
| % DIST K-12 STDS: BLACK NONHISPNC | -0.00026 | -0.00022 | -0.000039 | 14.81 |
| % DIST K-12 STDS: HISPANIC | 0.00052 | 0.00053 | -0.000011 | -2.06 |
| % DIST K-12 STDS: AMIND/ALASKAN | 0.00042 | 0.00044 | -0.000020 | -4.81 |
| RACE_ASN*PENRASND | -0.00065 | -0.00068 | 0.000029 | -4.37 |
| RACE_BLK*PENRBLKD | 0.00076 | 0.00087 | -0.000109 | -14.25 |
| RACE_HIS*PENRHISD | 0.00058 | 0.00062 | -0.000034 | -5.82 |
| RACE_NAT*PENRNATD | 0.00012 | 0.00012 | 0.000001 | 0.49 |
| % CHG IN DIST. ENR 89 TO 90, DIS | 0.00086 | 0.00079 | 0.000064 | 7.42 |
| % OF TOT ENR FOR LARGEST DIST ENR | -0.00081 | -0.00080 | -0.000011 | 1.31 |
| **(C) COST FACTORS—REGIONAL LEVEL** | | | | |
| CLOSEST CENTRAL CITY IS <10 MILES | ***************** *Comparison Group* *************** | | | |
| CLOSEST CENTRAL CITY IS 10-20 MILES | -0.00254 | -0.00129 | -0.001252 | 49.25 |
| CLOSEST CENTRAL CITY IS 20-40 MILES | 0.00264 | 0.00305 | -0.000410 | -15.50 |
| CLOSEST CENTRAL CITY IS 40-80 MILES | 0.00821 | 0.00825 | -0.000039 | -0.47 |
| CLOSEST CENTRAL CITY IS 80-160 MILES | 0.01636 | 0.02016 | -0.003792 | -23.18 |
| CLOSEST CENTRAL CITY IS > 160 MILES | 0.06128 | 0.06694 | -0.005658 | -9.23 |
| DISTRICT < 75 MILES OF 2 CENTRAL CITIES | -0.00510 | -0.00528 | 0.000174 | -3.40 |
| DISTRICT < 75 MILES OF 3 CENTRAL CITIES | 0.02196 | 0.02280 | -0.000840 | -3.82 |
| % CHANGE, COUNTY POPULATION 1980-90 | 0.00090 | 0.00094 | -0.000045 | -5.04 |
| LOG AVG VALUE FARM LAND/BLDG/ACRE, 87 | 0.05659 | 0.05693 | -0.000339 | -0.60 |
| NAT LOG COUNTY POPULATION DENSITY, 1990 | -0.06935 | -0.06802 | -0.001330 | 1.92 |
| SQUARE OF NAT LOG CNTY POP DENSITY, 1990 | 0.00568 | 0.00555 | 0.000124 | 2.19 |
| LOG POP MSA/PMSA AREA OR NONMET COUNTY | -0.06401 | -0.07245 | 0.008444 | -13.19 |
| SQUARE OF LOG POP MSA/PMSA AREA/NONMET CO | 0.00348 | 0.00380 | -0.000319 | -9.15 |

**Table B.3— A comparison of the parameter estimates for the Hedonic Salary Regressions using alternative dependent variables—Continued**

| | Parameter Estimates from: | | | |
|---|---|---|---|---|
| | Original Equation (Table B.2) | Equation using Log Academic Salary as dependent variable | Absolute Difference between Parameters (1) - (2) | % Difference between Parameters (3) ÷ (1) |
| Variables | (1) | (2) | (3) | (4) |
| CIVILIAN LABOR FORCE UNEMPLOYMENT RATE , 8 | -0.00455 | -0.00445 | -0.000106 | 2.33 |
| MEAN TEMPERATURE (30 YRS NORMAL) | -0.00351 | -0.00324 | -0.000269 | 7.67 |
| AVG SNOW IN. (30 YRS NORMAL) | 0.00060 | 0.00070 | -0.000092 | -15.20 |
| # OF BANKS PER 100,000 POPLTION, 86 | -0.00279 | -0.00310 | 0.000311 | -11.14 |
| # VIOLENT CRIMES PER 100,000 POPULATION | 0.00003 | 0.00003 | -0.000001 | -2.58 |

SOURCE: U.S. Department of Education, National Center for Education Statistics (NCES), Schools and Staffing Survey: 1990-91; U.S. Department of Education, NCES, Common Core of Data (nonfiscal surveys): 1990-91; the Private Schools file: 1990-91; U.S. Department of Commerce, Economics and Statistics Administration, Bureau of the Census, County and City Data Book: 1990; National Climatic Data Center, The World Weather Disc: Climate Data for the Planet Earth.

# APPENDIX C

## STANDARD ERRORS FOR SELECTED TABLES

The tables in this appendix contain estimates of the standard errors corresponding to statistics presented in selected tables from the body of this report. In addition, standard errors for the ordinary least squares regression parameters of the teacher compensation analysis are also presented.

**Table C.1— Standard errors for table 3.1: The factors underlying the differences in salaries of public and private school teachers, by private school type**

| | Average Private School Teacher Salary | Absolute Difference Between Public and Private School Teacher Salaries | Ratio of Public to Private Teacher Salaries | Percent of Difference between Average Public and Private School Teacher Salaries due to: | | | |
|---|---|---|---|---|---|---|---|
| | | | | Teacher Char. | School Char. | Labor Market Structure | Total |
| (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) |
| Conservative Christian | 317.91 | 329.26 | .051 | 2.03 | 1.62 | 3.03 | |
| Other religious unaffiliated | 778.72 | 784.86 | .101 | 2.14 | 2.60 | 3.72 | |
| Catholic Parochial | 221.26 | 232.26 | .026 | 1.52 | 1.44 | 2.25 | |
| Other religious affiliated | 396.41 | 387.30 | .040 | 2.23 | 2.05 | 3.07 | |
| Catholic Diocesan | 446.39 | 483.42 | .046 | 2.34 | 2.51 | 3.44 | |
| Nonsectarian: special emph. pgm. | 711.30 | 702.71 | .050 | 6.94 | 5.58 | 8.80 | |
| Nonsectarian: regular pgm. | 643.52 | 672.70 | .037 | 5.74 | 4.95 | 8.28 | |
| Nonsectarian: special ed. pgm. | 745.46 | 775.51 | .042 | 10.24 | 10.28 | 15.52 | |
| Catholic private | 725.83 | 724.48 | .038 | 9.69 | 10.80 | 10.56 | |

SOURCE: U.S. Department of Education, National Center for Education Statistics (NCES), Schools and Staffing Survey: 1990-91; U.S. Department of Education, NCES, Common Core of Data (nonfiscal surveys): 1990-91; the Private Schools file: 1990-91; U.S. Department of Commerce, Economics and Statistics Administration, Bureau of the Census, County and City Data Book: 1990; National Climatic Data Center, The World Weather Disc: Climate Data for the Planet Earth. The regression equations underlying the simulations for this table are displayed in table B.2A in Appendix B of this report. The list of variables which are included as teacher and school characteristics for the purposes of this simulation are listed in Appendix A.

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**Table C.2— Standard errors for table 4.2: Simulation of differences in public and private teacher salaries**

| | Public | | Private | |
|---|---|---|---|---|
| Row Analysis of Male-Female Wage Differences | Elementary | Secondary | Elementary | Secondary |
| A. Average salaries of females | $139 | $149 | $165 | $286 |
| B. Average salaries based on male characteristics in the female equations | $318 | $260 | $1,444 | $545 |
| C. Male-female salary difference due to differences in characteristics of males and females | 1.12% | 0.74% | 8.91% | 3.24% |
| D. Average salary of males | $362 | $184 | $629 | $488 |
| E. Male-female salary differences due to differences in the structure of male versus female equations | 1.01% | 0.63% | 8.85% | 3.04% |
| F. Overall male-female salary differential | 1.45% | 0.64% | 3.98% | 3.42% |

SOURCE: U.S. Department of Education, National Center for Education Statistics (NCES), Schools and Staffing Survey: 1990-91; U.S. Department of Education, NCES, Common Core of Data (nonfiscal surveys): 1990-91; the Private Schools file: 1990-91; U.S. Department of Commerce, Economics and Statistics Administration, Bureau of the Census, County and City Data Book: 1990; National Climatic Data Center, The World Weather Disc: Climate Data for the Planet Earth.

**Table C.3— Standard errors for table B.1: An index of private school teacher salaries, by private school type (other religious-affiliated schools set to the base of 100):1990-91**

| | Public Sector School Teachers | | | | | Private Sector School Teachers | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | Elementary | | Secondary | | | Elementary | | Secondary | |
| Variables | All | Male | Female | Male | Female | All | Male | Female | Male | Female |
| LOG(ACADEMIC+SUPPLEMENTAL SALARY,90-91) | 0.0034 | 0.0117 | 0.0939 | 0.0056 | 0.0051 | 0.0086 | 0.0340 | 0.0103 | 0.0229 | 0.0159 |
| TCHR IS WHITE | ****************************************** *Comparison Group* ********************************** | | | | | | | | | |
| TCHR IS ASIAN | 0.0038 | 0.0043 | 0.0006 | 0.0006 | | 0.0091 | 0.0026 | 0.0037 | 0.0034 | |
| TCHR IS BLACK | 0.0116 | 0.0127 | 0.0062 | 0.0038 | | 0.0141 | 0.0048 | 0.0062 | 0.0040 | |
| TCHR IS HISPANIC | 0.0082 | 0.0110 | 0.0026 | 0.0025 | | 0.0162 | 0.0041 | 0.0051 | 0.0060 | |
| TCHR IS AMERICAN INDIAN/ALASKAN NATIVE | 0.0011 | 0.0046 | 0.0010 | 0.0010 | | 0.0039 | 0.0017 | 0.0028 | 0.0013 | |
| TCHR IS WHITE FEMALE | ****************************************** *Comparison Group* ********************************** | | | | | | | | | |
| TCHR IS ASIAN MALE | 0.0002 | | | | | 0.0009 | | | | |
| TCHR IS BLACK MALE | 0.0014 | | | | | 0.0014 | | | | |
| TCHR IS HISPANIC MALE | 0.0008 | | | | | 0.0012 | | | | |
| TCHR IS AMER IND/ALSKN NATV MALE | 0.0003 | | | | | 0.0007 | | | | |
| TCHR IS WHITE MALE | 0.0033 | | | | | 0.0089 | | | | |
| TCHR IS ASIAN FEMALE | 0.0006 | | | | | 0.0018 | | | | |
| TCHR IS BLACK FEMALE | 0.0024 | | | | | 0.0027 | | | | |
| TCHR IS HISPANIC FEMALE | 0.0014 | | | | | 0.0025 | | | | |
| TCHR IS AMER IND/ALSKN NATV FEMALE | 0.0005 | | | | | 0.0009 | | | | |
| CURRENT MARITAL STATUS | 0.0037 | 0.0162 | 0.0411 | 0.0061 | 0.0058 | 0.0086 | 0.0413 | 0.0129 | 0.0210 | 0.0169 |
| MEMBER PROFESS TEACHER/ED ORGANIZATION | 0.0033 | 0.0146 | 0.0150 | 0.0048 | 0.0044 | 0.0109 | 0.0501 | 0.0155 | 0.0243 | 0.0176 |

**Table C.3— Standard errors for table B.1: Mean values for selected variables, by sector, by sex, and by school level: United States, 1990-91—Continued**

| | Public Sector School Teachers | | | | | Private Sector School Teachers | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | Elementary | | Secondary | | | Elementary | | Secondary | |
| Variables | All | Male | Female | Male | Female | All | Male | Female | Male | Female |
| TEACHES FULLTIME | ****************************************** *Comparison Group* ********************************** | | | | | | | | | |
| TEACHES < 1/4 TIME | 0.0008 | 0.0053 | 0.0127 | 0.0008 | 0.0011 | 0.0020 | 0.0065 | 0.0017 | 0.0070 | 0.0031 |
| TEACHES AT LEAST 1/4, NOT 1/2 | 0.0009 | 0.0065 | 0.0177 | 0.0014 | 0.0014 | 0.0032 | 0.0219 | 0.0031 | 0.0083 | 0.0070 |
| TEACHES AT LEAST 1/2, NOT 3/4 | 0.0016 | 0.0056 | 0.0139 | 0.0020 | 0.0025 | 0.0035 | 0.0191 | 0.0056 | 0.0096 | 0.0071 |
| TEACHES AT LEAST 3/4, NOT FULLTIME | 0.0008 | 0.0031 | 0.0031 | 0.0013 | 0.0018 | 0.0038 | 0.0080 | 0.0041 | 0.0056 | 0.0084 |
| MAIN ASGNMNT ITINERATE TCHR | 0.0017 | 0.0086 | 0.0225 | 0.0019 | 0.0024 | 0.0012 | 0.0048 | 0.0009 | 0.0034 | 0.0032 |
| MAIN ASGNMNT LONG TERM SUBST. TCHR | 0.0008 | 0.0047 | 0.0081 | 0.0006 | 0.0012 | 0.0008 | | 0.0018 | 0.0000 | 0.0003 |
| AGE AS OF 1991 | 0.0768 | 0.3766 | 0.9178 | 0.1769 | 0.1309 | 0.1865 | 1.2722 | 0.2873 | 0.3781 | 0.4294 |
| AGE AS OF 1991 - SQUARED | 6.9414 | 34.1905 | 77.2066 | 15.7973 | 11.5122 | 16.9289 | 114.7678 | 26.1591 | 35.8012 | 37.7127 |
| NUM OF BREAKS IN SERVICE OF 1 YR OR MORE | 0.0062 | 0.0189 | 0.3538 | 0.0086 | 0.0096 | 0.0139 | 0.0544 | 0.0216 | 0.0324 | 0.0262 |
| YRS SINCE BEGAN TCHNG IN THIS SCHOOL | 0.0678 | 0.2805 | 1.1987 | 0.1408 | 0.0943 | 0.1340 | 0.7377 | 0.1602 | 0.3951 | 0.2260 |
| YRS SINCE BEGAN TCHNG IN THIS SCHOOL-SQD | 1.8780 | 7.1649 | 32.5909 | 3.9948 | 2.4515 | 3.7828 | 18.1384 | 3.8635 | 13.6326 | 6.1178 |
| YRS SINCE BEGAN FIRST TCHNG POSITION | 0.0687 | 0.3516 | 0.4227 | 0.1666 | 0.1103 | 0.2021 | 1.1949 | 0.3053 | 0.4058 | 0.4585 |
| YRS SINCE BEGAN 1ST TCHNG POSITION-SQD | 2.7270 | 12.8774 | 25.0993 | 6.0200 | 4.3186 | 8.1689 | 52.5481 | 12.1723 | 16.6424 | 17.3349 |

**Table C.3— Standard errors for table B.1: Mean values for selected variables, by sector, by sex, and by school level: United States, 1990-91—Continued**

| | Public Sector School Teachers | | | | | Private Sector School Teachers | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | Elementary | | Secondary | | | Elementary | | Secondary | |
| Variables | All | Male | Female | Male | Female | All | Male | Female | Male | Female |
| HAS STANDARD TCHG CERTIFICATE | ****************************************** *Comparison Group* ********************************** | | | | | | | | | |
| HAS ADVANCED PROFESSIONAL TCHG CERTIFICATE | 0.0028 | 0.0122 | 0.0122 | 0.0044 | 0.0046 | 0.0040 | 0.0118 | 0.0059 | 0.0098 | 0.0086 |
| HAS PROBATIONARY CERTIFICATE | 0.0012 | 0.0048 | 0.0057 | 0.0023 | 0.0019 | 0.0028 | 0.0351 | 0.0032 | 0.0074 | 0.0053 |
| HAS TEMPORARY CERTIFICATE | 0.0013 | 0.0066 | 0.0085 | 0.0026 | 0.0022 | 0.0040 | 0.0165 | 0.0067 | 0.0090 | 0.0059 |
| NO TCHING CERTIFICATE | 0.0014 | 0.0073 | 0.0120 | 0.0024 | 0.0023 | 0.0095 | 0.0536 | 0.0123 | 0.0170 | 0.0159 |
| HIGHEST DEGREE IS BACHELORS | ****************************************** *Comparison Group* ********************************** | | | | | | | | | |
| HIGHEST DEGREE IS NONE | 0.0004 | 0.0002 | 0.0007 | 0.0014 | 0.0007 | 0.0044 | 0.0209 | 0.0078 | 0.0073 | 0.0049 |
| HIGHEST DEGREE IS ASSOC ARTS | 0.0003 | 0.0003 | 0.0005 | 0.0009 | 0.0002 | 0.0015 | 0.0053 | 0.0021 | 0.0034 | 0.0034 |
| HIGHEST DEGREE IS MASTERS | 0.0039 | 0.0158 | 0.0531 | 0.0079 | 0.0065 | 0.0089 | 0.0361 | 0.0114 | 0.0228 | 0.0162 |
| HIGHEST DEGREE IS ED SEPC CERT | 0.0019 | 0.0095 | 0.0162 | 0.0032 | 0.0034 | 0.0025 | 0.0197 | 0.0031 | 0.0095 | 0.0051 |
| HIGHEST DEGREE IS DOCTORATE | 0.0007 | 0.0041 | 0.0071 | 0.0015 | 0.0011 | 0.0026 | | 0.0013 | 0.0072 | 0.0048 |
| TEACHER IS SECONDARY LEVEL | 0.0054 | | | | | 0.0098 | | | | |
| LOG (CLSZINDX) | 0.0044 | 0.0165 | 0.0637 | 0.0068 | 0.0065 | 0.0107 | 0.0362 | 0.0098 | 0.0281 | 0.0188 |
| CURRENTLY MASTER OR MENTOR TEACHER | 0.0021 | 0.0140 | 0.0145 | 0.0044 | 0.0038 | 0.0065 | 0.0234 | 0.0090 | 0.0157 | 0.0084 |
| % TIME TEACHING OUT OF FIELD | 0.2509 | | | 0.4672 | 0.5132 | 0.6680 | | | 1.5515 | 1.1675 |
| OUT-OF-FIELD VALUE NOT APPLICABLE | 0.0063 | | | 0.0070 | 0.0059 | 0.0099 | | | 0.0145 | 0.0121 |
| % TCHG TIME W/ HIGH ACHVG STUDENTS | 0.3049 | 1.4427 | 3.1483 | 0.5110 | 0.3720 | 0.7440 | 3.4158 | 1.1268 | 1.3704 | 1.1430 |
| % TCHG TIME W/ LOW ACHVG STUDENTS | 0.3435 | 1.4824 | 2.4607 | 0.4373 | 0.4938 | 0.3474 | 1.8814 | 0.5421 | 0.9162 | 0.6468 |
| NON-SCHL TIME SPENT ON SCH-RELATED ACTVS | 0.0668 | 0.1985 | 0.2450 | 0.1322 | 0.1027 | 0.1658 | 0.6949 | 0.2089 | 0.3933 | 0.2638 |
| CONTRIBUTED SERVICE WORK IN THIS SCHOOL | | | | | | 0.0051 | 0.0386 | 0.0062 | 0.0085 | 0.0120 |

**Table C.3— Standard errors for table B.1: Mean values for selected variables, by sector, by sex, and by school level: United States, 1990-91—Continued**

| | Public Sector School Teachers | | | | | Private Sector School Teachers | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | Elementary | | Secondary | | | Elementary | | Secondary | |
| Variables | All | Male | Female | Male | Female | All | Male | Female | Male | Female |
| BA MAJOR IN EDUCATION-GENERAL ELEMENTARY | ****************************************** *Comparison Group* ********************************** | | | | | | | | | |
| BA MAJOR IN EDUCATION-BILINGUAL | 0.0003 | 0.0010 | 0.0011 | 0.0005 | 0.0003 | 0.0007 | | 0.0008 | 0.0011 | 0.0017 |
| BA MAJOR IN EDUCATION-EARLY CHILDHD | 0.0014 | 0.0025 | 0.0433 | 0.0002 | 0.0008 | 0.0025 | 0.0010 | 0.0053 | | 0.0012 |
| BA MAJOR IN EDUCATION-GENERAL SECONDARY | 0.0008 | 0.0026 | 0.0049 | 0.0025 | 0.0022 | 0.0025 | 0.0174 | 0.0020 | 0.0061 | 0.0056 |
| BA MAJOR IN EDUCATION-SPEC EDUC | 0.0017 | 0.0065 | 0.0460 | 0.0015 | 0.0028 | 0.0033 | 0.0114 | 0.0051 | 0.0024 | 0.0061 |
| BA MAJOR IN ART EDUC | 0.0008 | 0.0035 | 0.0048 | 0.0016 | 0.0018 | 0.0014 | 0.0079 | 0.0015 | 0.0034 | 0.0030 |
| BA MAJOR IN BUSINESS EDUC | 0.0009 | 0.0028 | 0.0037 | 0.0019 | 0.0022 | 0.0021 | 0.0131 | 0.0022 | 0.0047 | 0.0044 |
| BA MAJOR IN ENGLISH EDUC | 0.0013 | 0.0023 | 0.0065 | 0.0021 | 0.0034 | 0.0036 | 0.0056 | 0.0035 | 0.0058 | 0.0084 |
| BA MAJOR IN FOREIGN LANG EDUC | 0.0005 | 0.0012 | 0.0013 | 0.0009 | 0.0015 | 0.0022 | 0.0054 | 0.0015 | 0.0040 | 0.0057 |
| BA MAJOR IN MATH EDUC | 0.0008 | 0.0038 | 0.0076 | 0.0028 | 0.0020 | 0.0029 | 0.0031 | 0.0019 | 0.0064 | 0.0060 |
| BA MAJOR IN MISC EDUC | 0.0004 | 0.0036 | 0.0052 | 0.0009 | 0.0006 | 0.0015 | 0.0011 | 0.0020 | 0.0025 | 0.0044 |
| BA MAJOR IN MUSIC EDUC | 0.0013 | 0.0063 | 0.0389 | 0.0026 | 0.0024 | 0.0026 | 0.0093 | 0.0026 | 0.0070 | 0.0041 |
| BA MAJOR IN NATURAL SCIENCE EDUC | 0.0008 | 0.0041 | 0.0074 | 0.0022 | 0.0013 | 0.0017 | 0.0103 | 0.0014 | 0.0047 | 0.0036 |
| BA MAJOR IN PHYSICAL EDUCATION | 0.0021 | 0.0090 | 0.0475 | 0.0059 | 0.0038 | 0.0038 | 0.0230 | 0.0025 | 0.0119 | 0.0077 |
| BA MAJOR IN SOCIAL SCI EDUC | 0.0009 | 0.0001 | 0.0104 | 0.0004 | 0.0025 | 0.0022 | | 0.0031 | | 0.0050 |
| BA MAJOR IN VOCATIONAL EDUC | 0.0008 | 0.0040 | 0.0098 | 0.0032 | 0.0010 | 0.0008 | | 0.0004 | 0.0038 | |
| BA MAJOR IN ART | 0.0007 | 0.0030 | 0.0030 | 0.0009 | 0.0012 | 0.0018 | 0.0156 | 0.0020 | 0.0044 | 0.0042 |
| BA MAJOR IN BUSINESS | 0.0007 | 0.0052 | 0.0207 | 0.0014 | 0.0012 | 0.0015 | | 0.0013 | 0.0051 | 0.0018 |
| BA MAJOR IN ENGLISH | 0.0017 | 0.0058 | 0.0098 | 0.0026 | 0.0043 | 0.0039 | 0.0239 | 0.0044 | 0.0066 | 0.0085 |
| BA MAJOR IN FOREIGN LANGUAGES | 0.0010 | 0.0022 | 0.0026 | 0.0023 | 0.0025 | 0.0029 | 0.0027 | 0.0023 | 0.0058 | 0.0080 |
| BA MAJOR IN HUMANITIES | 0.0005 | 0.0016 | 0.0018 | 0.0004 | 0.0004 | 0.0013 | 0.0063 | 0.0016 | 0.0035 | 0.0022 |
| BA MAJOR IN MATH | 0.0009 | 0.0013 | 0.0023 | 0.0024 | 0.0024 | 0.0027 | | 0.0012 | 0.0086 | 0.0066 |
| BA MAJOR IN MISCELLANEOUS SUBJECTS | 0.0005 | 0.0024 | 0.0024 | 0.0004 | 0.0008 | 0.0005 | 0.0048 | 0.0010 | 0.0013 | 0.0001 |
| BA MAJOR IN MUSIC | 0.0008 | 0.0047 | 0.0158 | 0.0025 | 0.0014 | 0.0019 | 0.0048 | 0.0016 | 0.0069 | 0.0039 |
| BA MAJOR IN NATURAL SCIENCES | 0.0014 | 0.0039 | 0.0048 | 0.0042 | 0.0024 | 0.0044 | 0.0076 | 0.0029 | 0.0143 | 0.0078 |
| BA MAJOR IN PERFORMING ARTS | 0.0004 | 0.0014 | 0.0015 | 0.0007 | 0.0012 | 0.0009 | 0.0006 | 0.0013 | 0.0021 | 0.0023 |
| BA MAJOR IN SOCIAL SCIENCES | 0.0027 | 0.0103 | 0.0635 | 0.0064 | 0.0037 | 0.0060 | 0.0425 | 0.0069 | 0.0174 | 0.0096 |
| BA MAJOR IN A VOCATIONAL SUBJECT | 0.0004 | 0.0024 | 0.0051 | 0.0011 | 0.0012 | 0.0008 | 0.0040 | 0.0003 | 0.0036 | 0.0011 |

**Table C.3— Standard errors for table B.1: Mean values for selected variables, by sector, by sex, and by school level: United States, 1990-91—Continued**

| | Public Sector School Teachers | | | | | Private Sector School Teachers | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | Elementary | | Secondary | | | Elementary | | Secondary | |
| Variables | All | Male | Female | Male | Female | All | Male | Female | Male | Female |
| % STDS BOARD AT THIS SCH-PRV, SCH | | | | | | 0.6063 | 1.0965 | 0.6081 | 1.3421 | 0.9445 |
| ASSIGNED HOMEWORK IN RECENT WEEK | 0.0057 | 0.0185 | 0.0331 | 0.0053 | 0.0042 | 0.0097 | 0.0413 | 0.0128 | 0.0118 | 0.0096 |
| INDEX-STUDENT SELF-ABUSIVE BEHAVIOR | 0.0247 | 0.0391 | 0.1007 | 0.0368 | 0.0298 | 0.0243 | 0.0770 | 0.0177 | 0.0527 | 0.0437 |
| INDEX-STUDENTS FAMILY PROBLEMS | 0.0232 | 0.0711 | 0.0739 | 0.0326 | 0.0294 | 0.0378 | 0.2234 | 0.0430 | 0.0719 | 0.0682 |
| INDEX-TEACHERS SUPPORT | 0.0125 | 0.0479 | 0.0579 | 0.0209 | 0.0168 | 0.0329 | 0.1193 | 0.0452 | 0.0463 | 0.0548 |
| INDEX-TEACHERS CONTROL | 0.0113 | 0.0569 | 0.2325 | 0.0167 | 0.0154 | 0.0247 | 0.1431 | 0.0358 | 0.0409 | 0.0343 |
| INDEX-TEACHERS INFLUENCE IN POLICY | 0.0149 | 0.0640 | 0.1189 | 0.0258 | 0.0197 | 0.0448 | 0.2188 | 0.0653 | 0.0662 | 0.0593 |
| INDEX-TEACHERS SATISFACTION | 0.0110 | 0.0657 | 0.3956 | 0.0242 | 0.0179 | 0.0269 | 0.1235 | 0.0327 | 0.0540 | 0.0506 |
| INDEX-VIOLENT STUDENT BEHAVIOR | 0.0149 | 0.0395 | 0.0460 | 0.0226 | 0.0227 | 0.0191 | 0.1281 | 0.0213 | 0.0467 | 0.0353 |
| % STUDENTS ARE: ASIAN/PAC ISL, SCH | 0.0957 | 0.3352 | 0.3448 | 0.1124 | 0.1262 | 0.2845 | 1.1516 | 0.2781 | 0.3826 | 0.4159 |
| % STUDENTS ARE: BLACK/NONHISP, SCH | 0.3075 | 1.0803 | 1.1894 | 0.4949 | 0.4115 | 0.3591 | 2.4599 | 0.5314 | 0.6911 | 0.4728 |
| % STUDENTS ARE: HISPANIC, SCH | 0.3471 | 0.8048 | 1.4630 | 0.6051 | 0.4536 | 0.4036 | 2.8957 | 0.4562 | 0.6599 | 0.7264 |
| % STUDENTS ARE: AM INDIAN/ ALASKAN, SCH | 0.0322 | 0.1315 | 0.3698 | 0.0513 | 0.0528 | 0.1516 | 0.3775 | 0.1109 | 0.3427 | 0.0905 |
| RACE_ASN*PENRASNS | 0.0358 | 0.0937 | 0.2490 | 0.0209 | 0.0260 | 0.1525 | 0.8023 | 0.1528 | 0.1349 | 0.1950 |
| RACE_BLK*PENRBLKS | 0.1758 | 0.8497 | 0.9135 | 0.2521 | 0.2320 | 0.1925 | 1.3137 | 0.2970 | 0.2917 | 0.2007 |
| RACE_HIS*PENRHISS | 0.1360 | 0.5343 | 0.7244 | 0.1655 | 0.1374 | 0.1294 | 0.0994 | 0.1707 | 0.1477 | 0.3146 |
| RACE_NAT*PENRNATS | 0.0095 | 0.0248 | 0.0446 | 0.0100 | 0.0132 | 0.0409 | 0.2953 | 0.0035 | 0.0995 | 0.0346 |
| % STUDENTS ABSENT ON A RECENT DAY, SCH | 0.0540 | 0.1346 | 0.2507 | 0.0995 | 0.0795 | 0.1217 | 0.3340 | 0.1692 | 0.2149 | 0.1285 |

**Table C.3— Standard errors for table B.1: Mean values for selected variables, by sector, by sex, and by school level: United States, 1990-91—Continued**

| Variables | Public Sector School Teachers | | | | | Private Sector School Teachers | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | Elementary | | Secondary | | | Elementary | | Secondary | |
| | All | Male | Female | Male | Female | All | Male | Female | Male | Female |
| OTHER RELIGIOUS-AFFILIATED | ****************************************** Comparison Group ********************************** | | | | | | | | | |
| CATHOLIC-DIOCESAN | | | | | | 0.0099 | 0.0185 | 0.0114 | 0.0134 | 0.0142 |
| CATHOLIC-PAROCHIAL | | | | | | 0.0102 | 0.0272 | 0.0134 | 0.0127 | 0.0136 |
| CATHOLIC-PRIVATE | | | | | | 0.0068 | 0.0088 | 0.0048 | 0.0161 | 0.0158 |
| NON-SECTARIAN-REGULAR | | | | | | 0.0106 | 0.0478 | 0.0115 | 0.0155 | 0.0144 |
| NON-SECTARIAN-SPECIAL EMPHASIS | | | | | | 0.0060 | 0.0270 | 0.0071 | 0.0114 | 0.0083 |
| NON-SECTARIAN-SPECIAL EDUCATION | | | | | | 0.0041 | 0.0225 | 0.0048 | 0.0082 | 0.0078 |
| OTHER RELIGIOUS-UNAFFILIATED | | | | | | 0.0076 | 0.0277 | 0.0082 | 0.0100 | 0.0125 |
| OTHER RELIGIOUS-CONSERVATIVE CHRISTIAN | | | | | | 0.0097 | 0.0416 | 0.0129 | 0.0172 | 0.0120 |
| SCHOOL IS COED | ****************************************** Comparison Group ********************************** | | | | | | | | | |
| SCHOOL IS ALL FEMALE | | | | | | 0.0062 | | 0.0026 | 0.0062 | 0.0159 |
| SCHOOL IS ALL MALE | | | | | | 0.0061 | 0.0030 | 0.0021 | 0.0231 | 0.0060 |
| SCHOOL IS SPECIAL EDUCATION | 0.0009 | 0.0018 | 0.0027 | 0.0011 | 0.0014 | 0.0057 | 0.0298 | 0.0052 | 0.0117 | 0.0092 |
| SCHOOL IS VOCATIONAL/TECH | 0.0009 | 0.0007 | 0.0010 | 0.0027 | 0.0015 | 0.0011 | | | 0.0042 | 0.0009 |
| SCHOOL IS ALTERNATIVE | 0.0026 | 0.0004 | 0.0016 | 0.0070 | 0.0036 | 0.0046 | 0.0078 | 0.0053 | 0.0104 | 0.0053 |
| INDEX OF ADMISSION REQUIREMENTS | 0.0085 | 0.0168 | 0.0171 | 0.0177 | 0.0135 | 0.0156 | 0.0567 | 0.0212 | 0.0312 | 0.0225 |
| LOG OF STDT ENROLLMENT FOR THE SCHOOL | | | | | | 0.0247 | 0.0693 | 0.0246 | 0.0489 | 0.0338 |
| DIST ENROLLMENT: LESS THAN 501 | ****************************************** Comparison Group ********************************** | | | | | | | | | |
| DIST ENROLLMENT:501-1,000 | 0.0038 | 0.0122 | 0.0122 | 0.0043 | 0.0035 | | | | | |
| DIST ENROLLMENT:1,001-5,000 | 0.0073 | 0.0232 | 0.0546 | 0.0116 | 0.0106 | | | | | |
| DIST ENROLLMENT:5,001-10,000 | 0.0061 | 0.0147 | 0.0338 | 0.0095 | 0.0078 | | | | | |
| DIST ENROLLMENT:10,001-25,000 | 0.0057 | 0.0141 | 0.0143 | 0.0081 | 0.0086 | | | | | |
| DIST ENROLLMENT:25,001-50,000 | 0.0037 | 0.0109 | 0.0185 | 0.0056 | 0.0068 | | | | | |
| DIST ENROLLMENT:50,001-100,000 | 0.0026 | 0.0078 | 0.0156 | 0.0035 | 0.0049 | | | | | |
| DIST ENROLLMENT:MORE THAN 100,000 | 0.0039 | 0.0155 | 0.0205 | 0.0063 | 0.0076 | | | | | |

**Table C.3— Standard errors for table B.1: Mean values for selected variables, by sector, by sex, and by school level: United States, 1990-91—Continued**

| | Public Sector School Teachers | | | | | Private Sector School Teachers | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | Elementary | | Secondary | | | Elementary | | Secondary | |
| Variables | All | Male | Female | Male | Female | All | Male | Female | Male | Female |
| % DIST K-12 STDS: ASIAN/PACFC ISL | 0.0824 | 0.2579 | 0.2678 | 0.0997 | 0.1121 | | | | | |
| % DIST K-12 STDS: BLACK NONHISPNC | 0.2105 | 0.8693 | 1.6779 | 0.3765 | 0.3590 | | | | | |
| % DIST K-12 STDS: HISPANIC | 0.2847 | 0.7950 | 0.7989 | 0.5035 | 0.4566 | | | | | |
| % DIST K-12 STDS: AMIND/ALASKAN | 0.0361 | 0.1255 | 0.3096 | 0.0578 | 0.0474 | | | | | |
| RACE_ASN*PENRASND | 0.0209 | 0.0451 | 0.2444 | 0.0171 | 0.0216 | | | | | |
| RACE_BLK*PENRBLKD | 0.1389 | 0.6211 | 0.6213 | 0.2041 | 0.1837 | | | | | |
| RACE_HIS*PENRHISD | 0.1132 | 0.5223 | 0.8582 | 0.1751 | 0.1379 | | | | | |
| RACE_NAT*PENRNATD | 0.0097 | 0.0218 | 0.0459 | 0.0106 | 0.0131 | | | | | |
| % CHG IN DIST. ENR 89 TO 90, DIS | 0.0699 | 0.2991 | 0.3133 | 0.1266 | 0.0926 | | | | | |
| % OF TOT ENR FOR LARGEST DIST ENR | 0.3624 | 1.1289 | 4.8716 | 0.5086 | 0.6841 | | | | | |
| CLOSEST CENTRAL CITY IS LESS THAN 10 MILES | ****************************************** *Comparison Group* ********************************** | | | | | | | | | |
| CLOSEST CENTRAL CITY IS 10-20 MILES | 0.0071 | 0.0214 | 0.0230 | 0.0127 | 0.0092 | | | | | |
| CLOSEST CENTRAL CITY IS 20-40 MILES | 0.0054 | 0.0162 | 0.0159 | 0.0091 | 0.0082 | | | | | |
| CLOSEST CENTRAL CITY IS 40-80 MILES | 0.0049 | 0.0112 | 0.0352 | 0.0061 | 0.0074 | | | | | |
| CLOSEST CENTRAL CITY IS 80-160 MILES | 0.0028 | 0.0096 | 0.0097 | 0.0052 | 0.0031 | | | | | |
| CLOSEST CENTRAL CITY IS > 160 MILES | 0.0005 | 0.0020 | 0.0033 | 0.0011 | 0.0007 | 0.0006 | | 0.0005 | | 0.0012 |

**Table C.3— Standard errors for table B.1: Mean values for selected variables, by sector, by sex, and by school level: United States, 1990-91—Continued**

| | Public Sector School Teachers | | | | | Private Sector School Teachers | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | Elementary | | Secondary | | | Elementary | | Secondary | |
| Variables | All | Male | Female | Male | Female | All | Male | Female | Male | Female |
| DISTRICT < 75 MILES OF 2 CENTRAL CITIES | 0.0038 | 0.0133 | 0.0217 | 0.0078 | 0.0070 | | | | | |
| DISTRICT < 75 MILES OF 3 CENTRAL CITIES | 0.0059 | 0.0186 | 0.0531 | 0.0091 | 0.0089 | | | | | |
| % CHANGE, COUNTY POPULATION 1980-90 | 0.2336 | 0.6204 | 1.3590 | 0.4080 | 0.4415 | 0.4379 | 1.3325 | 0.6120 | 0.6649 | 0.4898 |
| LOG AVG VALUE FARM LAND/BLDG/ACRE, 87 | 0.0099 | 0.0221 | 0.0369 | 0.0145 | 0.0142 | 0.0213 | 0.0585 | 0.0221 | 0.0326 | 0.0314 |
| NAT LOG COUNTY POPULATION DENSITY, 1990 | 0.0281 | 0.0751 | 0.0738 | 0.0413 | 0.0391 | 0.0409 | 0.1957 | 0.0439 | 0.1001 | 0.0673 |
| SQR OF NAT LOG CNTY POP DENSITY, 1990 | 0.3482 | 0.8769 | 0.8218 | 0.5025 | 0.5003 | | | | | |
| NAT LOG COUNTY POPULATION, 1990 | | | | | | 0.0445 | 0.2069 | 0.0485 | 0.0888 | 0.0673 |
| LOG POP MSA/PMSA AREA OR NONMET COUNTY | 0.0304 | 0.0762 | 0.0812 | 0.0412 | 0.0421 | | | | | |
| SQR OF LOG POP MSA/PMSA AREA/NONMET CO | 0.7797 | 1.9430 | 1.9868 | 1.0633 | 1.0818 | | | | | |
| CIVILIAN LABOR FORCE UNEMPLOYMENT RATE,8 | 0.0310 | 0.1024 | 0.1618 | 0.0419 | 0.0412 | 0.0708 | 0.1935 | 0.0725 | 0.0842 | 0.1281 |
| MEAN TEMPERATURE (30 YRS NORMAL) | 0.0795 | 0.2998 | 2.2224 | 0.1646 | 0.1659 | | | | | |
| AVG SNOW IN. (30 YRS NORMAL) | 0.2836 | 0.8818 | 6.7116 | 0.5896 | 0.4614 | | | | | |
| # OF BANKS PER 100,000 POPULATION, 86 | 0.1287 | 0.3898 | 0.6059 | 0.2205 | 0.2006 | 0.2478 | 0.8205 | 0.2654 | 0.5524 | 0.2488 |
| # VIOLENT CRIMES PER 100,000 POPULATION. | 7.1810 | 20.1854 | 20.5633 | 10.8851 | 11.4023 | 12.2365 | 53.7413 | 14.0665 | 27.0056 | 21.2316 |

SOURCE: U.S. Department of Education, National Center for Education Statistics (NCES), Schools and Staffing Survey: 1990-91; U.S. Department of Education, NCES, Common Core of Data (nonfiscal surveys): 1990-91; the Private Schools file 1990-91; U.S. Department of Commerce, Economics and Statistics Administration, Bureau of the Census, County and City Data Book: 1990; National Climatic Data Center, The World Weather Disc: Climate Data for the Planet Earth.

**Table C.4— Standard errors for table B.2A: Parameter estimates for teacher salary regression equations by sector**

| | Public/ Private Combined | Public Sector School Teacher | Private Sector School Teacher |
|---|---|---|---|
| INTERCEPT | 0.1346 | 0.1606 | 0.1502 |
| TCHR IS WHITE FEMALE | ********* *Comparison Group* ********* | | |
| TCHR IS ASIAN MALE | 0.0185 | 0.0217 | 0.1560 |
| TCHR IS BLACK MALE | 0.0134 | 0.0133 | 0.0766 |
| TCHR IS HISPANIC MALE | 0.0204 | 0.0208 | 0.0885 |
| TCHR IS AMER IND/ALSKN NATV MALE | 0.0531 | 0.0554 | 0.1766 |
| TCHR IS WHITE MALE | 0.0037 | 0.0036 | 0.0173 |
| TCHR IS ASIAN FEMALE | 0.0122 | 0.0161 | 0.0388 |
| TCHR IS BLACK FEMALE | 0.0115 | 0.0139 | 0.0444 |
| TCHR IS HISPANIC FEMALE | 0.0147 | 0.0169 | 0.0474 |
| TCHR IS AMER IND/ALSKN NATV FEMALE | 0.0192 | 0.0211 | 0.1267 |
| CURRENT MARITAL STATUS | 0.0035 | 0.0036 | 0.0107 |
| MEMBER PROFESS TEACHER/ED ORGANIZATION | 0.0048 | 0.0052 | 0.0122 |
| TEACHES FULLTIME | ********* *Comparison Group* ********* | | |
| TEACHES < 1/4 TIME | 0.0617 | 0.0777 | 0.1401 |
| TEACHES AT LEAST 1/4, NOT 1/2 | 0.0290 | 0.0363 | 0.0614 |
| TEACHES AT LEAST 1/2, NOT 3/4 | 0.0160 | 0.0180 | 0.0289 |
| TEACHES AT LEAST 3/4, NOT FULLTIME | 0.0195 | 0.0215 | 0.0298 |
| MAIN ASGNMNT ITINERATE TCHR | 0.0237 | 0.0255 | 0.1218 |
| MAIN ASGNMNT LONG TERM SUBST. TCHR | 0.0379 | 0.0374 | 0.1923 |
| AGE AS OF 1991 | 0.0014 | 0.0014 | 0.0048 |
| AGE AS OF 1991 - SQUARED | 0.0000 | 0.0000 | 0.0000 |
| NUM OF BREAKS IN SERVICE OF 1 YR OR MORE | 0.0027 | 0.0028 | 0.0086 |
| YRS SINCE BEGAN TCHNG IN THIS SCHOOL | 0.0008 | 0.0009 | 0.0023 |
| YRS SINCE BEGAN TCHNG IN THIS SCHOOL-SQD | 0.0000 | 0.0000 | 0.0001 |
| YRS SINCE BEGAN FIRST TCHNG POSITION | 0.0009 | 0.0009 | 0.0020 |
| YRS SINCE BEGAN 1ST TCHNG POSITION-SQD | 0.0000 | 0.0000 | 0.0000 |

**Table C.4— Standard errors for table B.2A: Parameter estimates for teacher salary regression equations by sector—Continued**

| | Public/ Private Combined | Public Sector School Teacher | Private Sector School Teacher |
|---|---|---|---|
| BA MAJOR IN EDUCATION-GENERAL ELEMENTARY | ********* *Comparison Group* ********* | | |
| BA MAJOR IN EDUCATION-BILINGUAL | 0.0169 | 0.0180 | 0.0850 |
| BA MAJOR IN EDUCATION-EARLY CHILDHD | 0.0085 | 0.0095 | 0.0255 |
| BA MAJOR IN EDUCATION-GENERAL SECONDARY | 0.0096 | 0.0095 | 0.0449 |
| BA MAJOR IN EDUCATION-SPEC EDUC | 0.0090 | 0.0089 | 0.0387 |
| BA MAJOR IN ART EDUC | 0.0133 | 0.0127 | 0.0515 |
| BA MAJOR IN BUSINESS EDUC | 0.0077 | 0.0078 | 0.0580 |
| BA MAJOR IN ENGLISH EDUC | 0.0090 | 0.0091 | 0.0268 |
| BA MAJOR IN FOREIGN LANG EDUC | 0.0198 | 0.0180 | 0.0460 |
| BA MAJOR IN MATH EDUC | 0.0108 | 0.0115 | 0.0334 |
| BA MAJOR IN MISC EDUC | 0.0235 | 0.0216 | 0.0735 |
| BA MAJOR IN MUSIC EDUC | 0.0140 | 0.0150 | 0.0498 |
| BA MAJOR IN NATURAL SCIENCE EDUC | 0.0149 | 0.0137 | 0.0672 |
| BA MAJOR IN PHYSICAL EDUCATION | 0.0070 | 0.0067 | 0.0307 |
| BA MAJOR IN SOCIAL SCI EDUC | 0.0114 | 0.0104 | 0.0759 |
| BA MAJOR IN VOCATIONAL EDUC | 0.0088 | 0.0092 | 0.1034 |
| BA MAJOR IN ART | 0.0190 | 0.0218 | 0.0404 |
| BA MAJOR IN BUSINESS | 0.0156 | 0.0147 | 0.0635 |
| BA MAJOR IN ENGLISH | 0.0092 | 0.0092 | 0.0237 |
| BA MAJOR IN FOREIGN LANGUAGES | 0.0130 | 0.0156 | 0.0271 |
| BA MAJOR IN HUMANITIES | 0.0323 | 0.0311 | 0.0656 |
| BA MAJOR IN MATH | 0.0107 | 0.0107 | 0.0294 |
| BA MAJOR IN MISCELLANEOUS SUBJECTS | 0.0197 | 0.0177 | 0.0972 |
| BA MAJOR IN MUSIC | 0.0158 | 0.0172 | 0.0665 |
| BA MAJOR IN NATURAL SCIENCES | 0.0078 | 0.0084 | 0.0266 |
| BA MAJOR IN PERFORMING ARTS | 0.0187 | 0.0186 | 0.0499 |
| BA MAJOR IN SOCIAL SCIENCES | 0.0059 | 0.0063 | 0.0182 |
| BA MAJOR IN A VOCATIONAL SUBJECT | 0.0168 | 0.0159 | 0.1018 |
| HAS STANDARD TCHG CERTIFICATE | ********* *Comparison Group* ********* | | |
| HAS ADVANCED PROFESSIONAL TCHG CERTIFICATE | 0.0047 | 0.0047 | 0.0210 |
| HAS PROBATIONARY CERTIFICATE | 0.0096 | 0.0104 | 0.0260 |
| HAS TEMPORARY CERTIFICATE | 0.0090 | 0.0098 | 0.0216 |
| NO TCHING CERTIFICATE | 0.0091 | 0.0111 | 0.0128 |
| HIGHEST DEGREE IS BACHELORS | ********* *Comparison Group* ********* | | |
| HIGHEST DEGREE IS NONE | 0.0209 | 0.0177 | 0.0411 |
| HIGHEST DEGREE IS ASSOC ARTS | 0.0335 | 0.0292 | 0.0867 |
| HIGHEST DEGREE IS MASTERS | 0.0041 | 0.0046 | 0.0130 |
| HIGHEST DEGREE IS ED SEPC CERT | 0.0070 | 0.0078 | 0.0391 |
| HIGHEST DEGREE IS DOCTORATE | 0.0191 | 0.0205 | 0.0489 |
| TEACHER IS SECONDARY LEVEL | 0.0070 | 0.0078 | 0.0205 |
| LOG (CLSZINDX) | 0.0042 | 0.0046 | 0.0157 |
| CURRENTLY MASTER OR MENTOR TEACHER | 0.0054 | 0.0052 | 0.0181 |
| % TIME TEACHING OUT OF FIELD | 0.0001 | 0.0001 | 0.0002 |
| OUT-OF-FIELD VALUE NOT APPLICABLE | 0.0064 | 0.0065 | 0.0299 |

**Table C.4— Standard errors for table B.2A: Parameter estimates for teacher salary regression equations by sector—Continued**

| | Public/ Private Combined | Public Sector School Teacher | Private Sector School Teacher |
|---|---|---|---|
| % TCHG TIME W/ HIGH ACHVG STUDENTS | 0.0001 | 0.0001 | 0.0001 |
| % TCHG TIME W/ LOW ACHVG STUDENTS | 0.0000 | 0.0000 | 0.0004 |
| NON-SCHL TIME SPENT ON SCH-RELATED ACTVS | 0.0002 | 0.0002 | 0.0007 |
| CONTRIBUTED SERVICE WORK IN THIS SCHOOL | 0.0370 | | 0.0319 |
| % STDS BOARD AT THIS SCH-PRV, SCH | 0.0003 | | 0.0003 |
| ASSIGNED HOMEWORK IN RECENT WEEK | 0.0052 | 0.0052 | 0.0204 |
| INDEX-STUDENT SELF-ABUSIVE BEHAVIOR | 0.0012 | 0.0012 | 0.0063 |
| INDEX-STUDENTS FAMILY PROBLEMS | 0.0011 | 0.0010 | 0.0051 |
| INDEX-TEACHERS SUPPORT | 0.0013 | 0.0015 | 0.0046 |
| INDEX-TEACHERS CONTROL | 0.0013 | 0.0015 | 0.0045 |
| INDEX-TEACHERS INFLUENCE IN POLICY | 0.0012 | 0.0011 | 0.0033 |
| INDEX-TEACHERS SATISFACTION | 0.0009 | 0.0009 | 0.0036 |
| INDEX-VIOLENT STUDENT BEHAVIOR | 0.0014 | 0.0015 | 0.0085 |
| % STUDENTS ARE: ASIAN/PAC ISL, SCH | 0.0005 | 0.0006 | 0.0009 |
| % STUDENTS ARE: BLACK/NONHISP, SCH | 0.0001 | 0.0002 | 0.0005 |
| % STUDENTS ARE: HISPANIC, SCH | 0.0002 | 0.0003 | 0.0004 |
| % STUDENTS ARE: AM INDIAN/ALASKAN, SCH | 0.0002 | 0.0005 | 0.0020 |
| RACE_ASN*PENRASNS | 0.0004 | 0.0007 | 0.0016 |
| RACE_BLK*PENRBLKS | 0.0002 | 0.0003 | 0.0009 |
| RACE_HIS*PENRHISS | 0.0003 | 0.0006 | 0.0010 |
| RACE_NAT*PENRNATS | 0.0004 | 0.0006 | 0.1057 |
| % STUDENTS ABSENT ON A RECENT DAY, SCH | 0.0004 | 0.0005 | 0.0018 |
| CATHOLIC-DIOCESAN | 0.0205 | | 0.0256 |
| CATHOLIC-PAROCHIAL | 0.0129 | | 0.0199 |
| CATHOLIC-PRIVATE | 0.0261 | | 0.0355 |
| NON-SECTARIAN-REGULAR | 0.0220 | | 0.0275 |
| NON-SECTARIAN-SPECIAL EMPHASIS | 0.0279 | | 0.0412 |
| NON-SECTARIAN-SPECIAL EDUCATION | 0.0277 | | 0.0734 |
| OTHER RELIGIOUS-AFFILIATED | 0.0179 | | |
| OTHER RELIGIOUS-UNAFFILIATED | 0.0368 | | 0.0355 |
| OTHER RELIGIOUS-CONSERVATIVE CHRISTIAN | 0.0217 | | 0.0247 |
| SCHOOL IS COED | ********* *Comparison Group* ********* | | |
| SCHOOL IS ALL FEMALE | 0.0372 | | 0.0364 |
| SCHOOL IS ALL MALE | 0.0481 | | 0.0491 |
| SCHOOL IS SPECIAL EDUCATION | 0.0156 | 0.0155 | 0.0716 |
| SCHOOL IS VOCATIONAL/TECH | 0.0150 | 0.0151 | 0.2281 |
| SCHOOL IS ALTERNATIVE | 0.0276 | 0.0241 | 0.0893 |
| INDEX OF ADMISSION REQUIREMENTS | 0.0046 | 0.0047 | 0.0091 |
| LOG OF STDT ENROLLMENT FOR THE SCHOOL | | | 0.0088 |

**Table C.4— Standard errors for table B.2A: Parameter estimates for teacher salary regression equations by sector—Continued**

| | Public/ Private Combined | Public Sector School Teacher | Private Sector School Teacher |
|---|---|---|---|
| DIST ENROLLMENT: LESS THAN 501 | ********* *Comparison Group* ********* | | |
| DIST ENROLLMENT: 501-1000 | | 0.0120 | |
| DIST ENROLLMENT: 1001-5000 | | 0.0104 | |
| DIST ENROLLMENT: 5001-10,000 | | 0.0130 | |
| DIST ENROLLMENT: 10,001-25,000 | | 0.0141 | |
| DIST ENROLLMENT: 25,001-50,000 | | 0.0158 | |
| DIST ENROLLMENT: 50,001-100,000 | | 0.0158 | |
| DIST ENROLLMENT: > 100,000 | | 0.0165 | |
| % DIST K-12 STDS: ASIAN/PACFC ISL | | 0.0009 | |
| % DIST K-12 STDS: BLACK NONHISPNC | | 0.0002 | |
| % DIST K-12 STDS: HISPANIC | | 0.0003 | |
| % DIST K-12 STDS: AMIND/ALASKAN | | 0.0004 | |
| RACE_ASN*PENRASND | | 0.0010 | |
| RACE_BLK*PENRBLKD | | 0.0004 | |
| RACE_HIS*PENRHISD | | 0.0006 | |
| RACE_NAT*PENRNATD | | 0.0006 | |
| % CHG IN DIST. ENR 89 TO 90, DIS | | 0.0005 | |
| % OF TOT ENR FOR LARGEST DIST ENR | 0.0001 | 0.0001 | |
| CLOSEST CENTRAL CITY IS < 10 MILES | ********* *Comparison Group* ********* | | |
| CLOSEST CENTRAL CITY IS 10-20 MILES | 0.0058 | 0.0074 | |
| CLOSEST CENTRAL CITY IS 20-40 MILES | 0.0061 | 0.0066 | |
| CLOSEST CENTRAL CITY IS 40-80 MILES | 0.0062 | 0.0071 | |
| CLOSEST CENTRAL CITY IS 80-160 MILES | 0.0132 | 0.0115 | |
| CLOSEST CENTRAL CITY IS > 160 MILES | 0.0165 | 0.0161 | 0.1787 |
| DISTRICT < 75 MILES OF 2 CENTRAL CITIES | 0.0053 | 0.0051 | |
| DISTRICT < 75 MILES OF 3 CENTRAL CITIES | 0.0058 | 0.0062 | |
| % CHANGE, COUNTY POPULATION 1980-90 | 0.0001 | 0.0001 | 0.0005 |
| LOG AVG VALUE FARM LAND/BLDG/ACRE, 87 | 0.0039 | 0.0038 | 0.0117 |
| NAT LOG COUNTY POPULATION DENSITY, 1990 | 0.0061 | 0.0069 | 0.0096 |
| SQR OF NAT LOG CNTY POP DENSITY, 1990 | 0.0006 | 0.0006 | |
| NAT LOG COUNTY POPULATION, 1990 | | | 0.0068 |
| LOG POP MSA/PMSA AREA OR NONMET COUNTY | 0.0195 | 0.0244 | |
| SQR OF LOG POP MSA/PMSA AREA/NONMET CO | 0.0008 | 0.0010 | |
| CIVILIAN LABOR FORCE UNEMPLOYMENT RATE,8 | 0.0011 | 0.0012 | 0.0051 |
| MEAN TEMPERATURE (30 YRS NORMAL) | 0.0005 | 0.0004 | |
| AVG SNOW IN. (30 YRS NORMAL) | 0.0002 | 0.0002 | |
| # OF BANKS PER 100,000 POPULATION, 86 | 0.0003 | 0.0003 | 0.0009 |
| # VIOLENT CRIMES PER 100,000 POPULATION, | 0.0000 | 0.0000 | 0.0000 |

SOURCE: U.S. Department of Education, National Center for Education Statistics (NCES), Schools and Staffing Survey: 1990-91; U.S. Department of Education, NCES, Common Core of Data (nonfiscal surveys): 1990-91; the Private Schools file: 1990-91; U.S. Department of Commerce, Economics and Statistics Administration, Bureau of the Census, County and City Data Book: 1990; National Climatic Data Center, The World Weather Disc: Climate Data for the Planet Earth.

**Table C.5— Standard errors for table B.2B: Parameter estimates for teacher salary regression equations by sector, by school level: and by sex: United States, 1990-1991**

| | Coefficient | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | Public Sector School Teachers | | | | Private Sector School Teachers | | | |
| | Elementary | | Secondary | | Elementary | | Secondary | |
| | Male | Female | Male | Female | Male | Female | Male | Female |
| INTERCEPT | 0.6267 | 0.2287 | 0.2219 | 0.2152 | 1.8671 | 0.2419 | 0.4899 | 0.3269 |
| TCHR IS WHITE | ******************************** *Comparison Group* ********************************** | | | | | | | |
| TCHR IS ASIAN | 0.0767 | 0.0227 | 0.0226 | 0.0263 | 1.5421 | 0.0493 | 0.1555 | 0.0775 |
| TCHR IS BLACK | 0.0487 | 0.0236 | 0.0200 | 0.0184 | 29.3840 | 0.0677 | 0.1155 | 0.0516 |
| TCHR IS HISPANIC | 0.0981 | 0.0250 | 0.0218 | 0.0244 | 1.9361 | 0.0729 | 0.1109 | 0.0728 |
| TCHR IS AMERICAN INDIAN/ALASKAN NATIVE | 0.0777 | 0.0240 | 0.0663 | 0.0348 | 3.9802 | 0.1853 | 0.2540 | 0.1498 |
| CURRENT MARITAL STATUS | 0.0196 | 0.0054 | 0.0078 | 0.0052 | 0.0950 | 0.0169 | 0.0323 | 0.0194 |
| MEMBER PROFESS TEACHER/ED ORGANIZATION | 0.0250 | 0.0080 | 0.0068 | 0.0070 | 0.1151 | 0.0172 | 0.0289 | 0.0205 |
| TEACHES FULLTIME | ******************************** *Comparison Group* ********************************** | | | | | | | |
| TEACHES < 1/4 TIME | 0.2338 | 0.1277 | 0.1148 | 0.0940 | 0.7722 | 0.3379 | 0.2650 | 0.1954 |
| TEACHES AT LEAST 1/4, NOT 1/2 | 0.1399 | 0.0591 | 0.0669 | 0.0526 | 0.3691 | 0.1036 | 0.1178 | 0.0791 |
| TEACHES AT LEAST 1/2, NOT 3/4 | 0.1517 | 0.0286 | 0.0315 | 0.0231 | 2.0775 | 0.0400 | 0.1028 | 0.0534 |
| TEACHES AT LEAST 3/4, NOT FULLTIME | 0.1374 | 0.0390 | 0.0290 | 0.0294 | 0.1769 | 0.0426 | 0.0806 | 0.0578 |
| MAIN ASGNMNT ITINERATE TCHR | 0.1726 | 0.0426 | 0.0448 | 0.0401 | 0.9111 | 0.2645 | 0.2738 | 0.2247 |
| MAIN ASGNMNT LONG TERM SUBST. TCHR | 0.1890 | 0.0439 | 0.0885 | 0.0688 | | 0.2466 | 0.2779 | 0.2225 |
| AGE AS OF 1991 | 0.0052 | 0.0025 | 0.0028 | 0.0024 | 0.0619 | 0.0059 | 0.0165 | 0.0077 |
| AGE AS OF 1991 - SQUARED | 0.0001 | 0.0000 | 0.0000 | 0.0000 | 0.0008 | 0.0001 | 0.0002 | 0.0001 |
| NUM OF BREAKS IN SERVICE OF 1 YR OR MORE | 0.0268 | 0.0039 | 0.0044 | 0.0035 | 0.1162 | 0.0093 | 0.0240 | 0.0154 |
| YRS SINCE BEGAN TCHNG IN THIS SCHOOL | 0.0050 | 0.0013 | 0.0016 | 0.0014 | 0.0194 | 0.0042 | 0.0056 | 0.0037 |
| YRS SINCE BEGAN TCHNG IN THIS SCHOOL-SQD | 0.0002 | 0.0000 | 0.0001 | 0.0000 | 0.0007 | 0.0001 | 0.0002 | 0.0001 |
| YRS SINCE BEGAN FIRST TCHNG POSITION | 0.0068 | 0.0016 | 0.0016 | 0.0013 | 0.0240 | 0.0034 | 0.0081 | 0.0032 |
| YRS SINCE BEGAN 1ST TCHNG POSITION-SQD | 0.0002 | 0.0000 | 0.0000 | 0.0000 | 0.0007 | 0.0001 | 0.0002 | 0.0001 |

**Table C.5— Standard errors for table B.2B: Parameter estimates for teacher salary regression equations by sector, by school level: and by sex: United States, 1990-1991—Continued**

| | Coefficient | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | Public Sector School Teachers | | | | Private Sector School Teachers | | | |
| | Elementary | | Secondary | | Elementary | | Secondary | |
| | Male | Female | Male | Female | Male | Female | Male | Female |
| BA MAJOR IN EDUCATION-GENERAL ELEMENTARY | ******************************** *Comparison Group* ********************************* | | | | | | | |
| BA MAJOR IN EDUCATION-BILINGUAL | 0.1240 | 0.0253 | 0.0620 | 0.0393 | | 0.1494 | 0.1106 | 0.1544 |
| BA MAJOR IN EDUCATION-EARLY CHILDHD | 0.0691 | 0.0102 | 0.0424 | 0.0323 | 0.3498 | 0.0281 | | 0.3133 |
| BA MAJOR IN EDUCATION-GENERAL SECONDARY | 0.0530 | 0.0315 | 0.0118 | 0.0145 | 0.2396 | 0.1235 | 0.0772 | 0.0661 |
| BA MAJOR IN EDUCATION-SPEC EDUC | 0.0382 | 0.0126 | 0.0225 | 0.0145 | 17.3690 | 0.0509 | 0.1521 | 0.0558 |
| BA MAJOR IN ART EDUC | 0.0844 | 0.0417 | 0.0237 | 0.0157 | 0.2572 | 0.0822 | 0.1437 | 0.0730 |
| BA MAJOR IN BUSINESS EDUC | 0.0866 | 0.0265 | 0.0182 | 0.0119 | 0.3913 | 0.0717 | 0.1772 | 0.0893 |
| BA MAJOR IN ENGLISH EDUC | 0.0705 | 0.0266 | 0.0146 | 0.0105 | 0.5798 | 0.0555 | 0.0648 | 0.0451 |
| BA MAJOR IN FOREIGN LANG EDUC | 0.1431 | 0.0818 | 0.0269 | 0.0208 | 0.3519 | 0.1173 | 0.2713 | 0.0597 |
| BA MAJOR IN MATH EDUC | 0.1058 | 0.0698 | 0.0177 | 0.0110 | 0.2117 | 0.1568 | 0.0595 | 0.0479 |
| BA MAJOR IN MISC EDUC | 0.0889 | 0.0308 | 0.0391 | 0.0296 | 0.3849 | 0.0955 | 0.2063 | 0.1128 |
| BA MAJOR IN MUSIC EDUC | 0.0595 | 0.0447 | 0.0152 | 0.0231 | 0.7347 | 0.0819 | 0.1034 | 0.0789 |
| BA MAJOR IN NATURAL SCIENCE EDUC | 0.1182 | 0.0597 | 0.0152 | 0.0157 | 0.3130 | 0.0707 | 0.0813 | 0.1464 |
| BA MAJOR IN PHYSICAL EDUCATION | 0.0401 | 0.0208 | 0.0076 | 0.0100 | 0.3136 | 0.0989 | 0.0572 | 0.0476 |
| BA MAJOR IN SOCIAL SCI EDUC | 0.1162 | 0.0286 | 0.0410 | 0.0134 | | 0.0874 | | 0.1112 |
| BA MAJOR IN VOCATIONAL EDUC | 0.0916 | 0.0601 | 0.0103 | 0.0489 | | 0.4099 | 0.1244 | |
| BA MAJOR IN ART | 0.3345 | 0.0373 | 0.0334 | 0.0166 | 0.4391 | 0.0633 | 0.0692 | 0.0788 |
| BA MAJOR IN BUSINESS | 0.0471 | 0.0430 | 0.0248 | 0.0278 | | 0.0898 | 0.0804 | 0.2010 |
| BA MAJOR IN ENGLISH | 0.0500 | 0.0249 | 0.0166 | 0.0124 | 0.2395 | 0.0431 | 0.0628 | 0.0373 |
| BA MAJOR IN FOREIGN LANGUAGES | 0.0820 | 0.0553 | 0.0314 | 0.0161 | 0.7227 | 0.1003 | 0.0697 | 0.0464 |
| BA MAJOR IN HUMANITIES | 0.1242 | 0.0413 | 0.0535 | 0.0742 | 0.4901 | 0.1073 | 0.1074 | 0.1576 |
| BA MAJOR IN MATH | 0.0552 | 0.0577 | 0.0144 | 0.0153 | | 0.1266 | 0.0528 | 0.0381 |
| BA MAJOR IN MISCELLANEOUS SUBJECTS | 0.1174 | 0.0274 | 0.0622 | 0.0650 | 0.3760 | 0.1776 | 0.1648 | 0.1495 |
| BA MAJOR IN MUSIC | 0.1052 | 0.0570 | 0.0262 | 0.0249 | 0.9449 | 0.0974 | 0.1037 | 0.0995 |
| BA MAJOR IN NATURAL SCIENCES | 0.0763 | 0.0339 | 0.0085 | 0.0105 | 0.4198 | 0.0729 | 0.0495 | 0.0377 |
| BA MAJOR IN PERFORMING ARTS | 0.0791 | 0.0411 | 0.0349 | 0.0262 | 0.3909 | 0.1151 | 0.1228 | 0.1286 |
| BA MAJOR IN SOCIAL SCIENCES | 0.0275 | 0.0120 | 0.0126 | 0.0119 | 0.1333 | 0.0269 | 0.0442 | 0.0383 |
| BA MAJOR IN A VOCATIONAL SUBJECT | 0.1540 | 0.0532 | 0.0265 | 0.0261 | 0.3716 | 0.4307 | 0.1769 | 0.3088 |

**Table C.5— Standard errors for table B.2B: Parameter estimates for teacher salary regression equations by sector, by school level: and by sex: United States, 1990-1991—Continued**

| | Coefficient | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | Public Sector School Teachers | | | | Private Sector School Teachers | | | |
| | Elementary | | Secondary | | Elementary | | Secondary | |
| | Male | Female | Male | Female | Male | Female | Male | Female |
| HAS STANDARD TCHG CERTIFICATE | ******************************** *Comparison Group* ********************************** | | | | | | | |
| HAS ADVANCED PROFESSIONAL TCHG CERTIFICATE | 0.0265 | 0.0071 | 0.0064 | 0.0068 | 0.5352 | 0.0362 | 0.0553 | 0.0349 |
| HAS PROBATIONARY CERTIFICATE | 0.0439 | 0.0173 | 0.0188 | 0.0140 | 0.2100 | 0.0396 | 0.0714 | 0.0545 |
| HAS TEMPORARY CERTIFICATE | 0.0430 | 0.0155 | 0.0183 | 0.0165 | 0.2343 | 0.0349 | 0.0565 | 0.0418 |
| NO TCHING CERTIFICATE | 0.0416 | 0.0192 | 0.0236 | 0.0172 | 0.0949 | 0.0218 | 0.0285 | 0.0204 |
| HIGHEST DEGREE IS BACHELORS | ******************************** *Comparison Group* ********************************** | | | | | | | |
| HIGHEST DEGREE IS NONE | 0.1892 | 0.1214 | 0.0213 | 0.0507 | 0.3504 | 0.0510 | 0.1567 | 0.1029 |
| HIGHEST DEGREE IS ASSOC ARTS | 0.1712 | 0.3058 | 0.0270 | 0.0673 | 1.2705 | 0.1198 | 0.2559 | 0.1449 |
| HIGHEST DEGREE IS MASTERS | 0.0197 | 0.0069 | 0.0058 | 0.0056 | 0.1067 | 0.0227 | 0.0266 | 0.0219 |
| HIGHEST DEGREE IS ED SEPC CERT | 0.0481 | 0.0140 | 0.0125 | 0.0118 | 0.2666 | 0.0507 | 0.0649 | 0.0711 |
| HIGHEST DEGREE IS DOCTORATE | 0.0734 | 0.0567 | 0.0253 | 0.0382 | | 0.2000 | 0.0837 | 0.0792 |
| LOG (CLSZINDX) | 0.0252 | 0.0085 | 0.0066 | 0.0053 | 0.1091 | 0.0232 | 0.0415 | 0.0217 |
| CURRENTLY MASTER OR MENTOR TEACHER | 0.0315 | 0.0091 | 0.0091 | 0.0075 | 0.2458 | 0.0336 | 0.0437 | 0.0306 |
| % TIME TEACHING OUT OF FIELD | | | 0.0001 | 0.0001 | | | 0.0004 | 0.0003 |
| OUT-OF-FIELD VALUE NOT APPLICABLE | | | 0.0152 | 0.0112 | | | 0.0581 | 0.0584 |
| % TCHG TIME W/ HIGH ACHVG STUDENTS | 0.0004 | 0.0001 | 0.0001 | 0.0001 | 0.0008 | 0.0002 | 0.0003 | 0.0003 |
| % TCHG TIME W/ LOW ACHVG STUDENTS | 0.0002 | 0.0001 | 0.0001 | 0.0001 | 0.0739 | 0.0006 | 0.0008 | 0.0005 |
| NON-SCHL TIME SPENT ON SCH-RELATED ACTVS | 0.0010 | 0.0004 | 0.0003 | 0.0003 | 0.0046 | 0.0012 | 0.0011 | 0.0018 |
| CONTRIBUTED SERVICE WORK IN THIS SCHOOL | | | | | 0.1153 | 0.0360 | 0.0692 | 0.0687 |
| % STDS BOARD AT THIS SCH-PRV. SCH | | | | | 0.2224 | 0.0007 | 0.0006 | 0.0005 |
| ASSIGNED HOMEWORK IN RECENT WEEK | 0.0197 | 0.0068 | 0.0163 | 0.0145 | 0.1172 | 0.0174 | 0.0955 | 0.0687 |

**Table C.5— Standard errors for table B.2B: Parameter estimates for teacher salary regression equations by sector, by school level: and by sex: United States, 1990-1991—Continued**

| | Coefficient | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | Public Sector School Teachers | | | | Private Sector School Teachers | | | |
| | Elementary | | Secondary | | Elementary | | Secondary | |
| | Male | Female | Male | Female | Male | Female | Male | Female |
| INDEX-STUDENT SELF-ABUSIVE BEHAVIOR | 0.0105 | 0.0028 | 0.0019 | 0.0021 | 0.0974 | 0.0157 | 0.0134 | 0.0105 |
| INDEX-STUDENTS FAMILY PROBLEMS | 0.0053 | 0.0015 | 0.0019 | 0.0022 | 0.0503 | 0.0074 | 0.0137 | 0.0090 |
| INDEX-TEACHERS SUPPORT | 0.0061 | 0.0021 | 0.0026 | 0.0021 | 0.0441 | 0.0069 | 0.0102 | 0.0096 |
| INDEX-TEACHERS CONTROL | 0.0065 | 0.0022 | 0.0020 | 0.0024 | 0.0418 | 0.0069 | 0.0134 | 0.0132 |
| INDEX-TEACHERS INFLUENCE IN POLICY | 0.0057 | 0.0016 | 0.0015 | 0.0019 | 0.0258 | 0.0050 | 0.0088 | 0.0069 |
| INDEX-TEACHERS SATISFACTION | 0.0049 | 0.0019 | 0.0016 | 0.0014 | 0.0317 | 0.0052 | 0.0110 | 0.0067 |
| INDEX-VIOLENT STUDENT BEHAVIOR | 0.0083 | 0.0031 | 0.0024 | 0.0031 | 0.0724 | 0.0141 | 0.0209 | 0.0134 |
| % STUDENTS ARE: ASIAN/PAC ISL, SCH | 0.0034 | 0.0009 | 0.0010 | 0.0012 | 0.0064 | 0.0012 | 0.0014 | 0.0015 |
| % STUDENTS ARE: BLACK/NONHISP, SCH | 0.0005 | 0.0002 | 0.0004 | 0.0003 | 0.0034 | 0.0007 | 0.0014 | 0.0007 |
| % STUDENTS ARE: HISPANIC, SCH | 0.0012 | 0.0004 | 0.0006 | 0.0005 | 0.0054 | 0.0007 | 0.0013 | 0.0008 |
| % STUDENTS ARE: AM INDIAN/ALASKAN, SCH | 0.0010 | 0.0008 | 0.0005 | 0.0006 | 0.0346 | 0.0020 | 0.0018 | 0.0098 |
| RACE_ASN*PENRASNS | 0.0047 | 0.0010 | 0.0014 | 0.0015 | 0.4412 | 0.0023 | 0.0086 | 0.0023 |
| RACE_BLK*PENRBLKS | 0.0011 | 0.0005 | 0.0006 | 0.0005 | 0.2994 | 0.0014 | 0.0021 | 0.0015 |
| RACE_HIS*PENRHISS | 0.0022 | 0.0006 | 0.0011 | 0.0012 | 1.1223 | 0.0017 | 0.0043 | 0.0015 |
| RACE_NAT*PENRNATS | 0.0022 | 0.0010 | 0.0021 | 0.0013 | 5.6132 | 0.3106 | 0.6327 | 0.0037 |
| % STUDENTS ABSENT ON A RECENT DAY, SCH | 0.0025 | 0.0010 | 0.0009 | 0.0008 | 0.0127 | 0.0021 | 0.0029 | 0.0031 |
| CATHOLIC-DIOCESAN | | | | | 0.4468 | 0.0357 | 0.0511 | 0.0466 |
| CATHOLIC-PAROCHIAL | | | | | 0.2367 | 0.0270 | 0.0412 | 0.0397 |
| CATHOLIC-PRIVATE | | | | | 0.3673 | 0.0701 | 0.0669 | 0.0475 |
| NON-SECTARIAN-REGULAR | | | | | 0.1412 | 0.0355 | 0.0499 | 0.0468 |
| NON-SECTARIAN-SPECIAL EMPHASIS | | | | | 0.4342 | 0.0612 | 0.0776 | 0.0587 |
| NON-SECTARIAN-SPECIAL EDUCATION | | | | | 5.0451 | 0.1261 | 0.3106 | 0.1883 |
| OTHER RELIGIOUS-UNAFFILIATED | | | | | 0.1515 | 0.0467 | 0.0556 | 0.0683 |
| OTHER RELIGIOUS-CONSERVATIVE CHRISTIAN | | | | | 0.1519 | 0.0309 | 0.0529 | 0.0521 |
| OTHER RELIGIOUS-AFFILIATED | ********************************** *Comparison Group* ********************************** | | | | | | | |

**Table C.5— Standard errors for table B.2B: Parameter estimates for teacher salary regression equations by sector, by school level: and by sex: United States, 1990-1991—Continued**

| | Coefficient | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | Public Sector School Teachers | | | | Private Sector School Teachers | | | |
| | Elementary | | Secondary | | Elementary | | Secondary | |
| | Male | Female | Male | Female | Male | Female | Male | Female |
| SCHOOL IS COED | ********************************* *Comparison Group* ********************************* | | | | | | | |
| SCHOOL IS ALL FEMALE | | | | | | 0.1472 | 0.0681 | 0.0454 |
| SCHOOL IS ALL MALE | | | | | 16.1048 | 0.1533 | 0.0667 | 0.0737 |
| SCHOOL IS SPECIAL EDUCATION | 0.0560 | 0.0251 | 0.0376 | 0.0202 | 10.6956 | 0.1379 | 0.3183 | 0.1990 |
| SCHOOL IS VOCATIONAL/TECH | 0.0692 | 0.1164 | 0.0139 | 0.0242 | | | 0.2152 | 0.1016 |
| SCHOOL IS ALTERNATIVE | 0.1415 | 0.0598 | 0.0251 | 0.0410 | 1.7484 | 0.1975 | 0.1116 | 0.1043 |
| INDEX OF ADMISSION REQUIREMENTS | 0.0221 | 0.0068 | 0.0078 | 0.0062 | 0.0660 | 0.0141 | 0.0323 | 0.0153 |
| LOG OF STDT ENROLLMENT FOR THE SCHOOL | | | | | 0.0575 | 0.0140 | 0.0225 | 0.0151 |
| DIST ENROLLMENT: < 501 | ********************************* *Comparison Group* ********************************* | | | | | | | |
| DIST ENROLLMENT: 501-1000 | 0.0810 | 0.0155 | 0.0136 | 0.0181 | | | | |
| DIST ENROLLMENT: 1001-5000 | 0.0900 | 0.0161 | 0.0128 | 0.0158 | | | | |
| DIST ENROLLMENT: 5001-10,000 | 0.0976 | 0.0165 | 0.0139 | 0.0203 | | | | |
| DIST ENROLLMENT: 10,001-25,000 | 0.1093 | 0.0209 | 0.0158 | 0.0217 | | | | |
| DIST ENROLLMENT: 25,001-50,000 | 0.1026 | 0.0237 | 0.0184 | 0.0255 | | | | |
| DIST ENROLLMENT: 50,001-100,000 | 0.1089 | 0.0219 | 0.0186 | 0.0257 | | | | |
| DIST ENROLLMENT: > 100,000 | 0.1173 | 0.0268 | 0.0236 | 0.0293 | | | | |
| % DIST K-12 STDS: ASIAN/PACFC ISL | 0.0030 | 0.0011 | 0.0015 | 0.0015 | | | | |
| % DIST K-12 STDS: BLACK NONHISPNC | 0.0007 | 0.0003 | 0.0004 | 0.0003 | | | | |
| % DIST K-12 STDS: HISPANIC | 0.0011 | 0.0004 | 0.0006 | 0.0005 | | | | |
| % DIST K-12 STDS: AMIND/ALASKAN | 0.0011 | 0.0007 | 0.0004 | 0.0007 | | | | |
| RACE_ASN*PENRASND | 0.0039 | 0.0012 | 0.0018 | 0.0018 | | | | |
| RACE_BLK*PENRBLKD | 0.0011 | 0.0008 | 0.0007 | 0.0006 | | | | |
| RACE_HIS*PENRHISD | 0.0024 | 0.0007 | 0.0011 | 0.0013 | | | | |
| RACE_NAT*PENRNATD | 0.0024 | 0.0008 | 0.0024 | 0.0014 | | | | |
| % CHG IN DIST. ENR 89 TO 90, DIS | 0.0020 | 0.0010 | 0.0007 | 0.0010 | | | | |
| % OF TOT ENR FOR LARGEST DIST ENR | 0.0003 | 0.0001 | 0.0001 | 0.0002 | | | | |

**Table C.5— Standard errors for table B.2B: Parameter estimates for teacher salary regression equations by sector, by school level: and by sex: United States, 1990-1991—Continued**

| | Coefficient | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | Public Sector School Teachers | | | | Private Sector School Teachers | | | |
| | Elementary | | Secondary | | Elementary | | Secondary | |
| | Male | Female | Male | Female | Male | Female | Male | Female |
| CLOSEST CENTRAL CITY IS < 10 MILES | ********************************* *Comparison Group* ********************************* | | | | | | | |
| CLOSEST CENTRAL CITY IS 10-20 MILES | 0.0265 | 0.0114 | 0.0104 | 0.0108 | | | | |
| CLOSEST CENTRAL CITY IS 20-40 MILES | 0.0269 | 0.0117 | 0.0118 | 0.0093 | | | | |
| CLOSEST CENTRAL CITY IS 40-80 MILES | 0.0259 | 0.0107 | 0.0128 | 0.0129 | | | | |
| CLOSEST CENTRAL CITY IS 80-160 MILES | 0.0534 | 0.0166 | 0.0223 | 0.0173 | | | | |
| CLOSEST CENTRAL CITY IS > 160 MILES | 0.0635 | 0.0266 | 0.0262 | 0.0269 | | 0.4551 | | 0.0556 |
| DISTRICT < 75 MILES OF 2 CENTRAL CITIES | 0.0354 | 0.0084 | 0.0075 | 0.0082 | | | | |
| DISTRICT < 75 MILES OF 3 CENTRAL CITIES | 0.0342 | 0.0098 | 0.0085 | 0.0091 | | | | |
| % CHANGE, COUNTY POPULATION 1980-90 | 0.0009 | 0.0002 | 0.0002 | 0.0003 | 0.0035 | 0.0009 | 0.0012 | 0.0009 |
| LOG AVG VALUE FARM LAND/BLDG/ACRE, 87 | 0.0201 | 0.0064 | 0.0061 | 0.0061 | 0.1078 | 0.0148 | 0.0279 | 0.0214 |
| NAT LOG COUNTY POPULATION DENSITY, 1990 | 0.0307 | 0.0095 | 0.0120 | 0.0095 | 0.0582 | 0.0140 | 0.0174 | 0.0189 |
| SQR OF NAT LOG CNTY POP DENSITY, 1990 | 0.0027 | 0.0008 | 0.0012 | 0.0010 | | | | |
| NAT LOG COUNTY POPULATION, 1990 | | | | | 0.0708 | 0.0141 | 0.0171 | 0.0143 |
| LOG POP MSA/PMSA AREA OR NONMET COUNTY | 0.0881 | 0.0327 | 0.0336 | 0.0357 | | | | |
| SQR OF LOG POP MSA/PMSA AREA/NONMET CO | 0.0035 | 0.0013 | 0.0013 | 0.0014 | | | | |
| CIVILIAN LABOR FORCE UNEMPLOYMENT RATE,8 | 0.0047 | 0.0017 | 0.0015 | 0.0016 | 0.0341 | 0.0054 | 0.0083 | 0.0100 |
| MEAN TEMPERATURE (30 YRS NORMAL) | 0.0019 | 0.0006 | 0.0007 | 0.0006 | | | | |
| AVG SNOW IN. (30 YRS NORMAL) | 0.0007 | 0.0003 | 0.0002 | 0.0002 | | | | |
| # OF BANKS PER 100,000 POPULATION, 86 | 0.0013 | 0.0005 | 0.0004 | 0.0003 | 0.0067 | 0.0010 | 0.0019 | 0.0032 |
| # VIOLENT CRIMES PER 100,000 POPULATION, | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0002 | 0.0000 | 0.0000 | 0.0000 |

SOURCE: U.S. Department of Education, National Center for Education Statistics (NCES), Schools and Staffing Survey: 1990-91; U.S. Department of Education, NCES, Common Core of Data (nonfiscal surveys): 1990-91; the Private Schools file: 1990-91; U.S. Department of Commerce, Economics and Statistics Administration, Bureau of the Census, County and City Data Book: 1990, National Climatic Data Center, The World Weather Disc: Climate Data for the Planet Earth.

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